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1. ALL RESISTANCE VALUES ARE IN OHMS, 0.1 WATT +/- 5%.
2. ALL CAPACITANCE VALUES ARE IN MICROFARADS.
3. ALL CRYSTALS & OSCILLATOR VALUES ARE IN HERTZ.

REV	ECN	DESCRIPTION OF REVISION	CK APPD	DATE
4	0004752417	ENGINEERING RELEASED		2015-08-24

N69 MLB - EVT

LAST_MODIFICATION=Wed Aug 19 11:42:47 2015

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SCH 051-00648
BRD 820-00282
MCO 056-01352
BOM 639-00931 (N69 BETTER)
BOM 639-01012 (N69H BETTER)
BOM 639-01231 (N69 BEST)
BOM 639-01232 (N69H BEST)
BOM 639-01271 (N69 ULTRA)
BOM 639-01272 (N69H ULTRA)

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DRAWING TITLE: SCH,MLB,N69

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DRAWING NUMBER: 051-00648 SIZE: D

REVISION: 4.0.0

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SCHEMATIC & PCB BOM CALLOUTS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
051-00648	1	SCH,MLB,N69	SCH	CRITICAL	?
820-00282	1	PCBF,MLB,N69	PCB	CRITICAL	?
825-6838	1	EEEE CODE FOR 639-00931 16GB	EEEE_GH6K	CRITICAL	EEEE_16G
825-6838	1	EEEE CODE FOR 639-01012 16GB	EEEE_GJYD	CRITICAL	EEEE_16GH
825-6838	1	EEEE CODE FOR 639-01231 32GB	EEEE_GN7J	CRITICAL	EEEE_32G
825-6838	1	EEEE CODE FOR 639-01232 32GB	EEEE_GN7H	CRITICAL	EEEE_32GH
825-6838	1	EEEE CODE FOR 639-01271 64GB	EEEE_GP3V	CRITICAL	EEEE_64G
825-6838	1	EEEE CODE FOR 639-01272 64GB	EEEE_GP3W	CRITICAL	EEEE_64GH

S3E NAND BOM OPTIONS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
335S00054	1	NAND,1YNM,16GX8,S3E,64G,T,SLGA70	U1500	CRITICAL	NAND_16G
335S00072	1	NAND,1YNM,32GX8,S3E,64G,T,SLGA70	U1500	CRITICAL	NAND_32G
335S00076	1	NAND,1YNM,64GX8,S3E,TLC,128G,H,ULGA70	U1500	CRITICAL	NAND_64G

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
335S00071	335S00054	NAND_16G	U1500	HYNIX 16G SLGA70
335S00085	335S00072	NAND_32G	U1500	TOSHIBA 16G SLGA70

CARBON BOM OPTIONS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
338S00017	1	IC,CARBON,MPU-6700-12,LGA16	U3010	INVENSENSE_CARBON
338S1163	1	IC,ACCEL,3-AXIS,DIG,BMA282,LGA14	U3020	INVENSENSE_CARBON
132S0316	1	CAP,CER,X5R,0.1UF,20%,6.3V,01005	C3020	INVENSENSE_CARBON
138S0692	1	CAP,CER,X5R,1UF,20%,6.3V,0201	C3021	INVENSENSE_CARBON
132S0316	1	CAP,CER,X5R,0.1UF,20%,6.3V,01005	C3022	INVENSENSE_CARBON
117S0202	1	RES,MF,20OHM,5%,1/32W,01005	R3020	INVENSENSE_CARBON
117S0202	1	RES,MF,20OHM,5%,1/32W,01005	R3021	INVENSENSE_CARBON
117S0202	1	RES,MF,20OHM,5%,1/32W,01005	R3022	INVENSENSE_CARBON
338S00087	1	IC,CARBON,MPU-6800-00,LGA16	U3010	INVENSENSE_CARBON_1_1

COMPASS PART NUMBER

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
338S00084	1	IC,COMPASS,MAGNESIUM,601A-19,FLGA14	U3000	COMMON

SHIELD PART NUMBERS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
806-03629	1	SHIELD,EMI,UPPER FRONT,N69	SH0500	COMMON
806-03630	1	SHIELD,EMI,LOWER FRONT,N69	SH0501	COMMON
806-03556	1	SHIELD,EMI,BACK,N69	SH0503	COMMON

POWER INDUCTOR ALTERNATES

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
152S00117	152S00074	?	L2000	TAIYO 2016 1.0UH
152S00121	152S00081	?	L2001	TAIYO 2012 0.47UH
152S00120	152S00077	?	L2070	TAIYO 2016 1.0UH 0.65MM
152S00118	152S00075	?	L3700	TAIYO 2016 1.2UH
152S00123	152S1936	?	L4020	TAIYO 3225 15UH

ALTERNATE BOM OPTIONS

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:	
138S00032	138S0831	ALTERNATE	C0610	TY,2.2UF,0201	NOT ALL REFERENCE DESIGNATORS LISTED. USED 91 TIMES IN DESIGN.
138S00049	138S0831	ALTERNATE	C0610	KYOCERA,2.2UF,0201	USED 91 TIMES IN DESIGN.
155S0660	155S0513	ALTERNATE	FL3100	MURATA,FERR,22-OHM	USED 5 TIMES IN DESIGN.
138S00005	138S00003	ALTERNATE	C1500	TY,15UF,0402	USED 61 TIMES IN DESIGN.
138S00048	138S00003	ALTERNATE	C1500	KYOCERA,15UF,0402	USED 61 TIMES IN DESIGN.
118S0764	118S0717	ALTERNATE	R2250	PANASONIC,3.92K-OHM,0201	USED 1 TIME IN DESIGN.
138S00006	138S0835	ALTERNATE	C1106	TY,4.3UF,0402	USED 20 TIMES IN DESIGN.
152S2052	152S1929	ALTERNATE	L2060	CYNTEC,1UH,1608	USED 1 TIME IN DESIGN.
155S0773	155S0453	ALTERNATE	FL3101	TY,FERR,120-OHM,01005	USED 35 TIMES IN DESIGN.
377S0168	377S0140	ALTERNATE	DZ3150	TDK,VARISTOR,6.8V,100PF,01005	USED 9 TIMES IN DESIGN.
155S00067	155S0581	ALTERNATE	FL4200	TDK,FERR,240-OHM,0201	USED 5 TIMES IN DESIGN.
155S00012	155S00009	ALTERNATE	L3100	MURATA,CHOKE,65-OHM,0605	USED 10 TIMES IN DESIGN.
138S0706	138S0739	ALTERNATE	C5302_RF	MURATA,CAP,CER,1UF,20%,10V,X5R,0201	USED 4 TIMES IN DESIGN.
138S0945	138S0739	ALTERNATE	C5302_RF	KYOCERA,CAP,CER,1UF,20%,10V,X5R,0201	USED 4 TIMES IN DESIGN.
155S00095	155S00068	ALTERNATE	FL1280	FERR BD,100 OHM,25%,100MA,2 OHM,01005	USED 1 TIME IN DESIGN.
138S0648	138S0652	ALTERNATE	C3650	TY,4.7UF,0402	USED 9 TIMES IN DESIGN.
132S0400	132S0436	ALTERNATE	C1280	CAP,CER,X5R,0.22UF,20%,6.3V,01005	USED 1 TIME IN DESIGN.
155S0960	155S0941	ALTERNATE	FL3151	FERR BD,70 OHM,25%,300MA,0.4 DCR,01005	USED 8 TIMES IN DESIGN.
138S00024	138S0986	ALTERNATE	C5201_RF	CAP,CER,3-TERM,7.5UF,20%,4V,0402	USED 1 TIME IN DESIGN.
335S00066	335S0946	ALTERNATE	U0900	IC,EEPROM,16KX8,1.8V,I2C,WLCSP4	USED 1 TIME IN DESIGN.
376S00106	376S00047	ALTERNATE	Q2300	DIODES INC. ACT DIODE	USED 1 TIME IN DESIGN.
343S0688	343S0638	ALTERNATE	U4301	CUMULUS 2ND FLOW	USED 1 TIME IN DESIGN.
138S00022	138S0867	ALTERNATE	C1100	TY,10UF,0402	USED 51 TIMES IN DESIGN.
138S00020	138S0867	ALTERNATE	C1100	MURATA,10UF,0402	USED 51 TIMES IN DESIGN.

PMU/SOC BOM OPTIONS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
339S00121	1	POP,MALTA+2GB 25NM DDR,A1,M,DEV	U0600	MALTA
118S00009	1	RES,MF,3.01KOHM,1%,1/32W,01005	R0730	MALTA
131S0307	1	CAP,CER,NPO/COG,100PF,5%,16V,01005	C0730	NOSTUFF
118S00025	1	RES,MF,330OHM,1%,1/32W,01005	R0651	MALTA
132S0316	1	CAP,CER,X5R,0.1UF,20%,6.3V,01005	C0731	NOSTUFF
338S00170	1	IC,PMU,ANTIGUA,D2255A1,OTP-BG	U2000	MALTA

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
339S00096	1	POP,MAUI+2GB 25NM DDR,C0,H,DEV	U0600	MAUI
118S0631	1	RES,MF,100OHM,1%,1/32W,01005	R0730	MAUI
131S0307	1	CAP,CER,NPO/COG,100PF,5%,16V,01005	C0730	MAUI
117S0161	1	RES,MF,0OHM,1/32W,01005	R0651	MAUI
132S0316	1	CAP,CER,X5R,0.1UF,20%,6.3V,01005	C0731	MAUI
338S00171	1	IC,PMU,ANTIGUA,D2255A1,OTP-YG	U2000	MAUI

SOC ALTERNATES

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
339S00122	339S00121	ALTERNATE	U0600	MALTA DEV, H DRAM
339S00123	339S00121			

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
339S00097	339S00096	ALTERNATE	U0600	MAUI DEV, M DRAM
339S00098	339S00096	ALTERNATE	U0600	MAUI DEV, S DRAM

SYNC_MASTER=N/A SYNC_DATE=N/A

PAGE TITLE

SYSTEM:BOM TABLES

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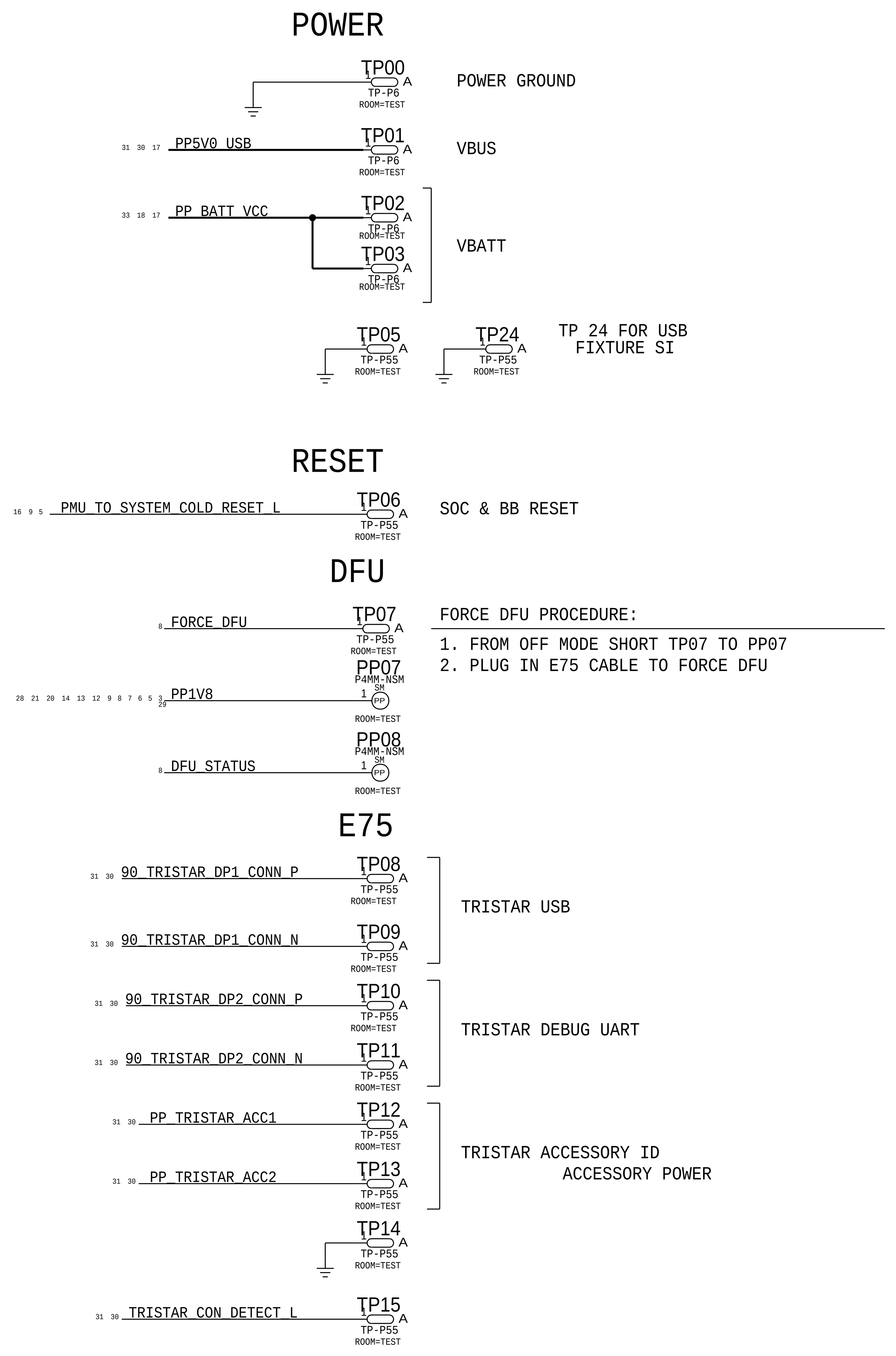
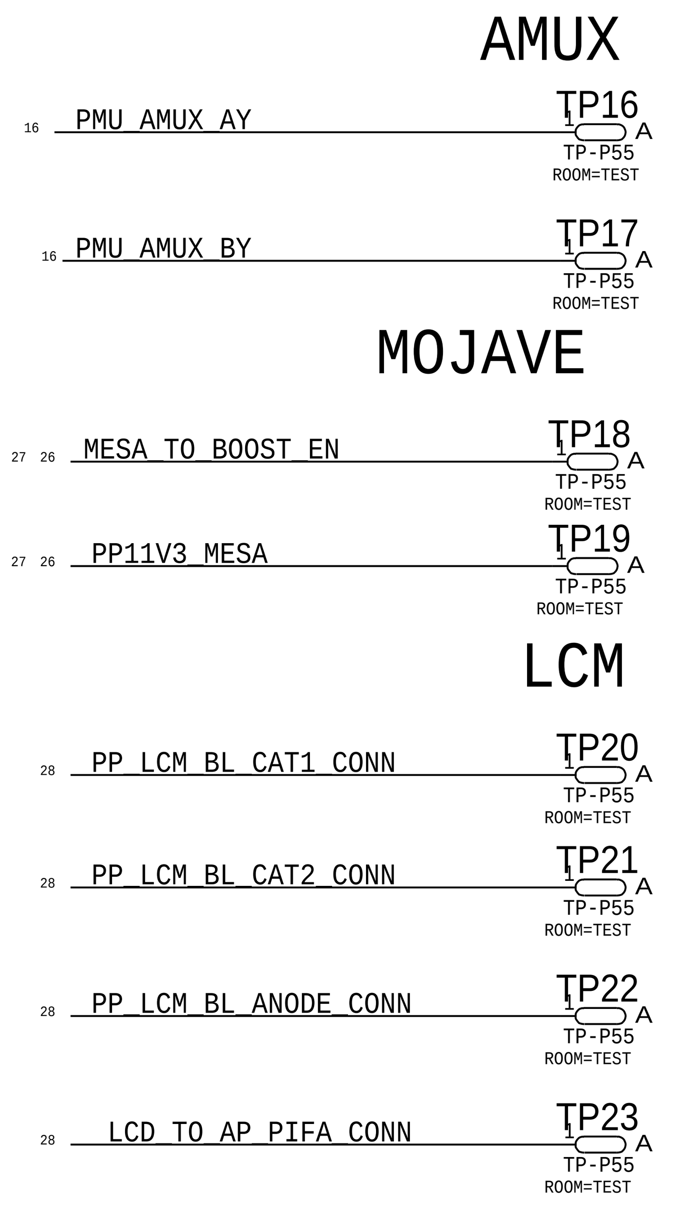
TESTPOINTS

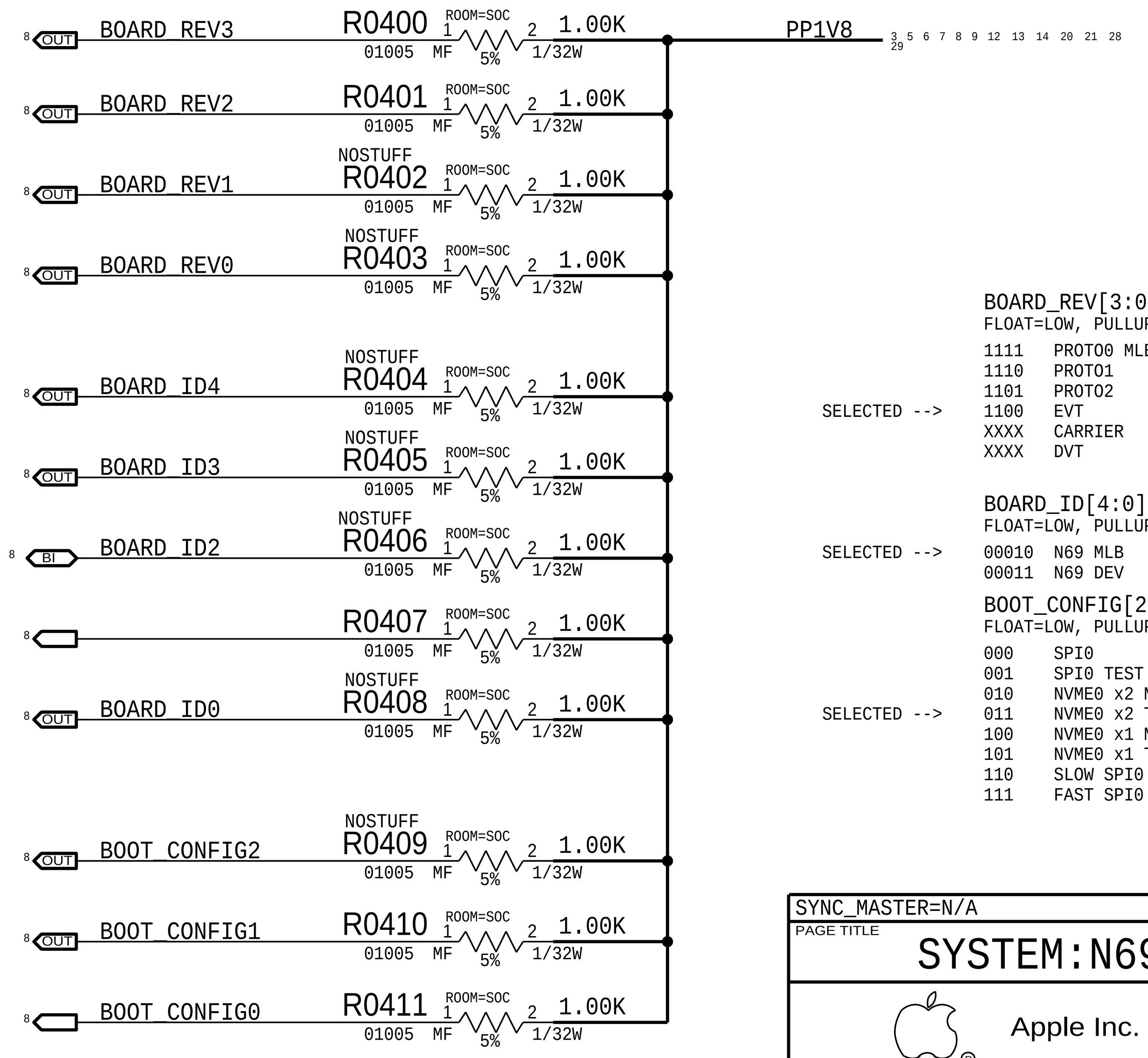




N69 I2C DEVICE MAP

I2C BUS	DEVICE	BINARY	7-BIT HEX	8-BIT HEX
I2C0	ANTIGUA PMU	1110100X	0X74	0XE8
	CHESTNUT	0100111X	0X27	0X4E
	BACKLIGHT	1100010X	0X62	0XC4
I2C1	TIGRIS	1110101X	0X75	0XEA
	SPEAKER AMP	1000000X	0X40	0X80
	TRISTAR	0011010X	0X1A	0X34
I2C2	ALS	0101001X	0X29	0X52
OWL	UNUSED	N/A	N/A	N/A
ISP I2C0	REAR CAM	TBD	TBD	TBD
	LED DRIVER	1100011X	0X63	0XC6
ISP I2C1	FRONT CAM	0110110X	0X36	0X6C
TOUCH I2C	UNUSED	N/A	N/A	N/A
SEP I2C	SEP EEPROM	1010001X	0x51	0xA2

BOOTSTRAPPING:BOARD REV
BOARD ID
BOOT CONFIG



RESISTOR STUFF = HIGH '1'
RESISTOR NOSTUFF = LOW '0'

BOARD_REV[3:0]
FLOAT=LOW, PULLUP=HIGH

	1111	PROTO0 MLB
	1110	PROTO1
	1101	PROTO2
SELECTED -->	1100	EVT
	XXXX	CARRIER
	XXXX	DVT

BOARD_ID[4:0]
FLOAT=LOW, PULLUP=HIGH

SELECTED -->	00010	N69 MLB
	00011	N69 DEV

BOOT_CONFIG[2:0]
FLOAT=LOW, PULLUP=HIGH

	000	SPI0
	001	SPI0 TEST MODE
	010	NVME0 x2 MODE
SELECTED -->	011	NVME0 x2 TEST MODE
	100	NVME0 x1 MODE
	101	NVME0 x1 TEST MODE
	110	SLOW SPI0 TEST MODE
	111	FAST SPI0 TEST MODE

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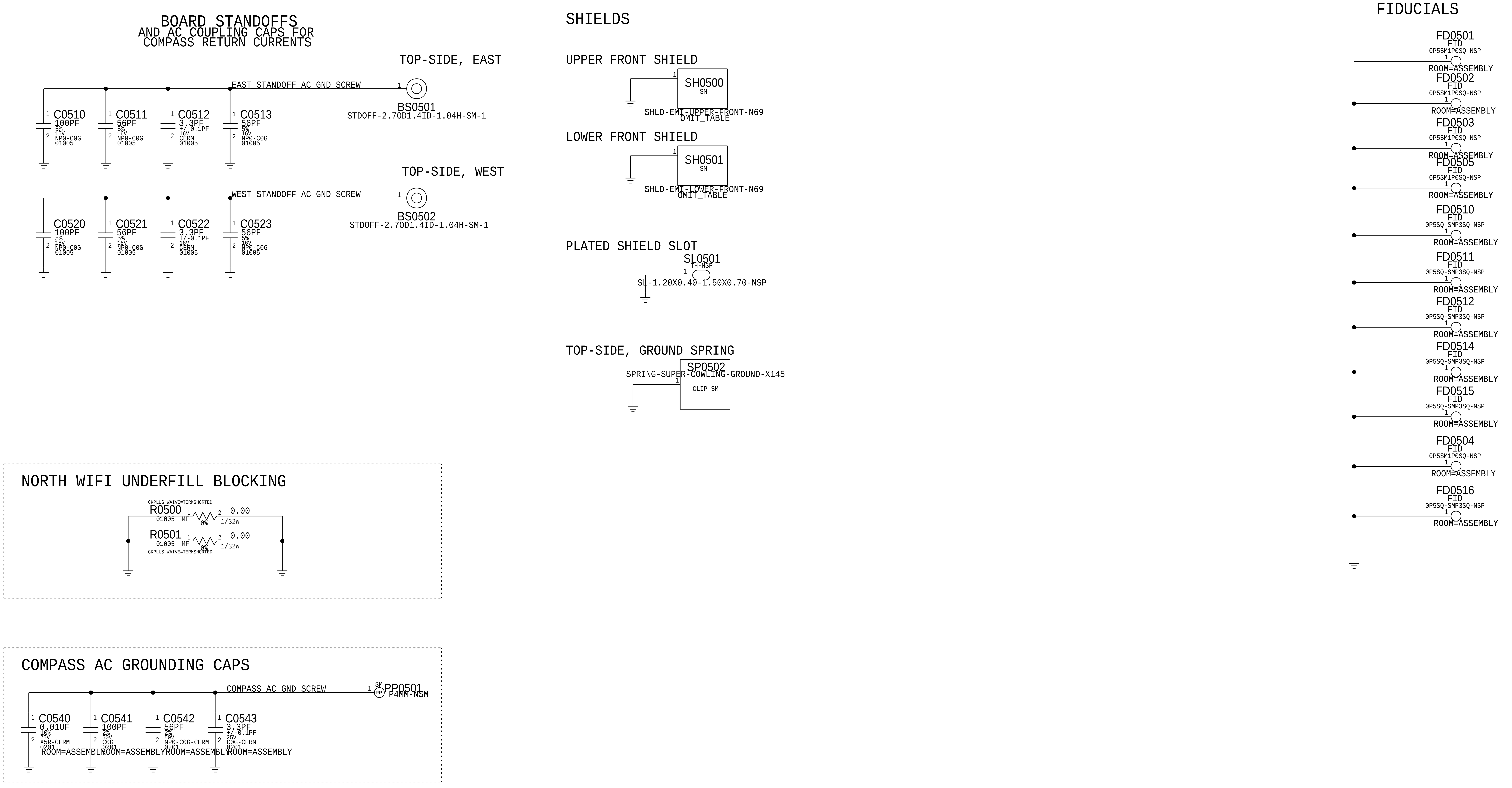

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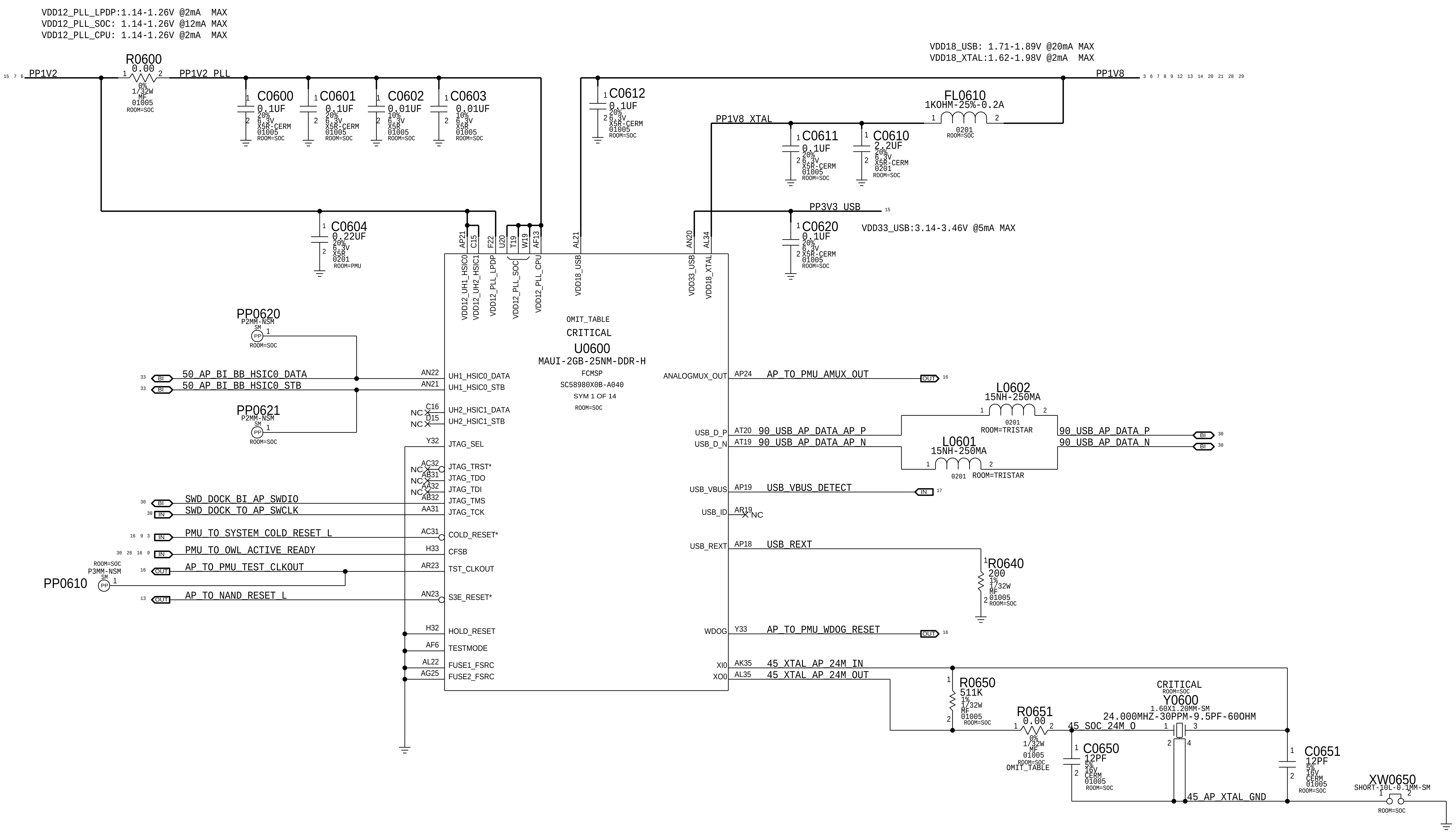
SOC - USB, JTAG, XTAL



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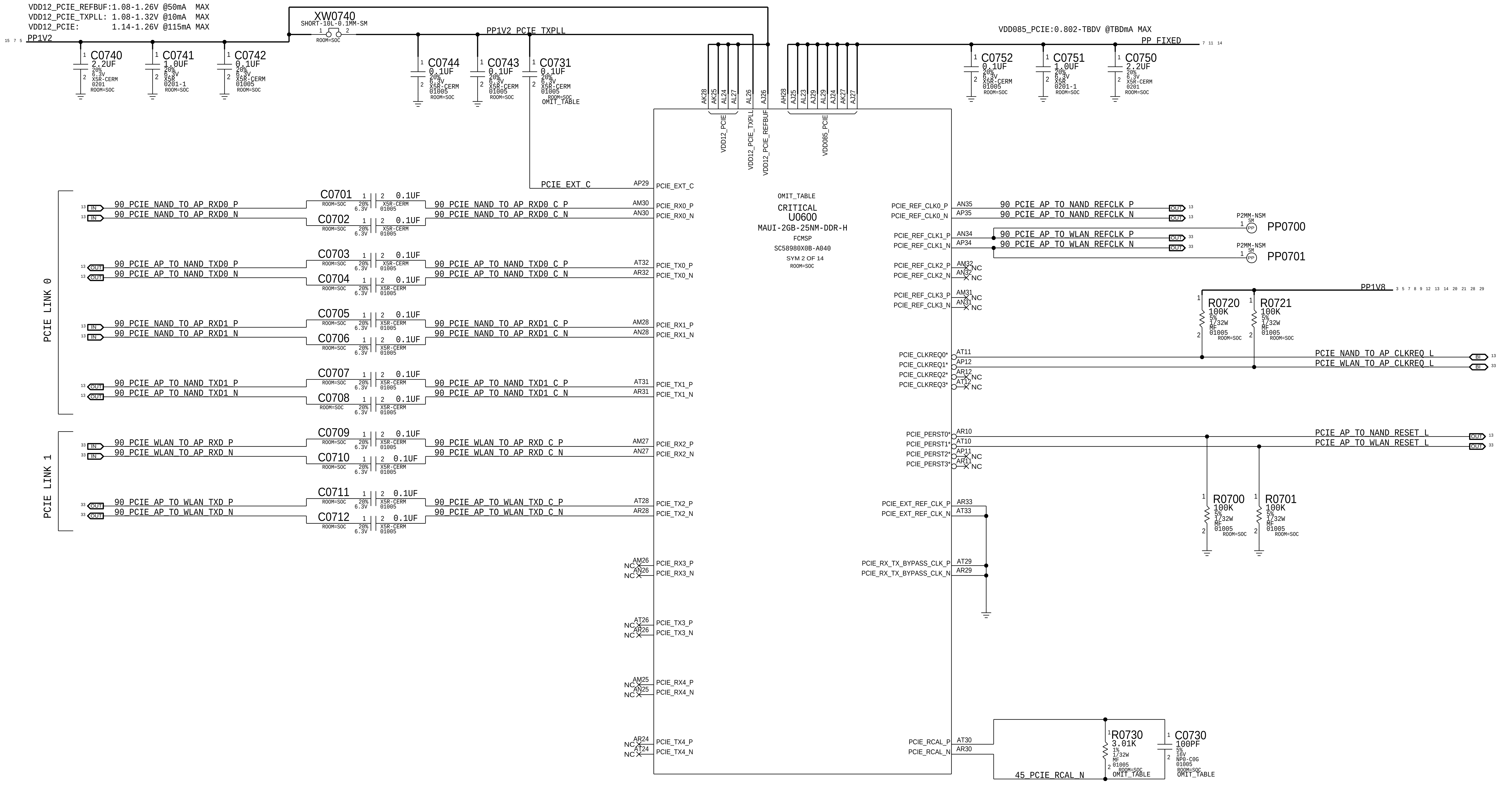
SOC - PCIE INTERFACES



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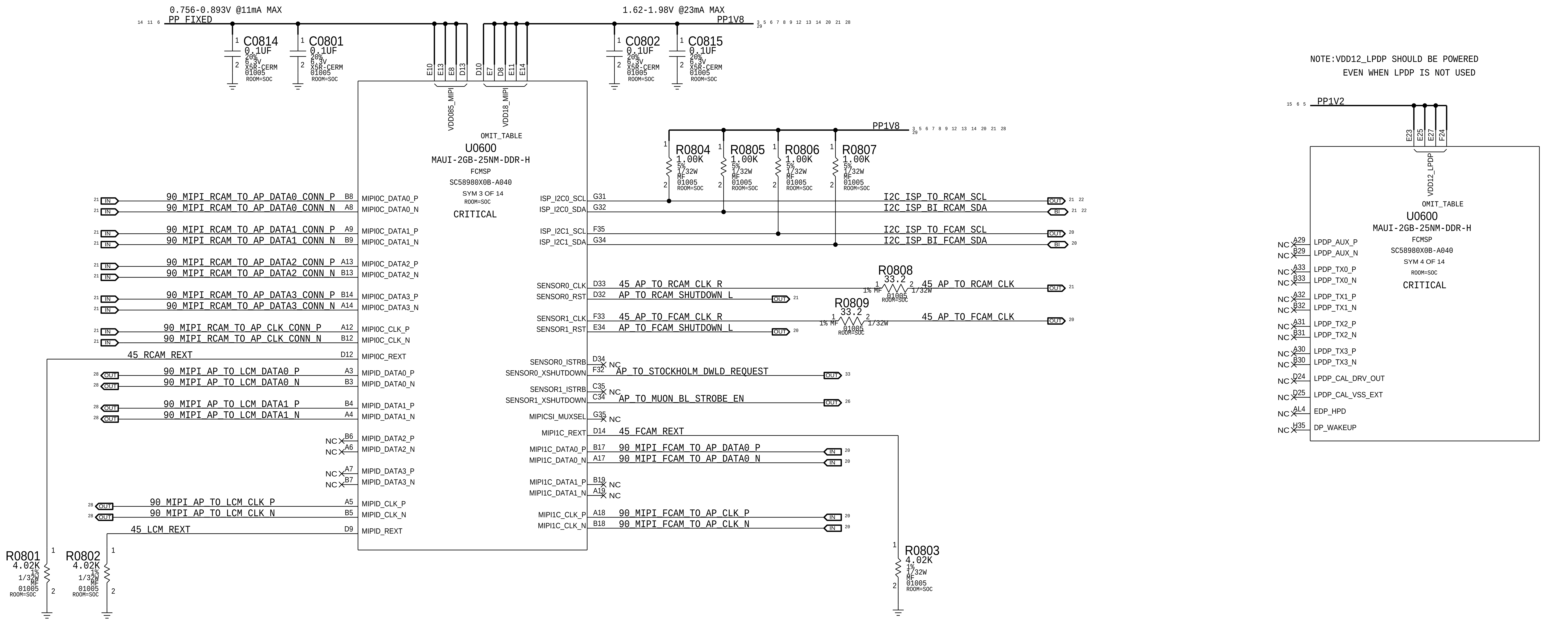
SOC - CAMERA & DISPLAY INTERFACES



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SOC:CAMERA & DISPLAY

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SOC - GPIO & SERIAL INTERFACES

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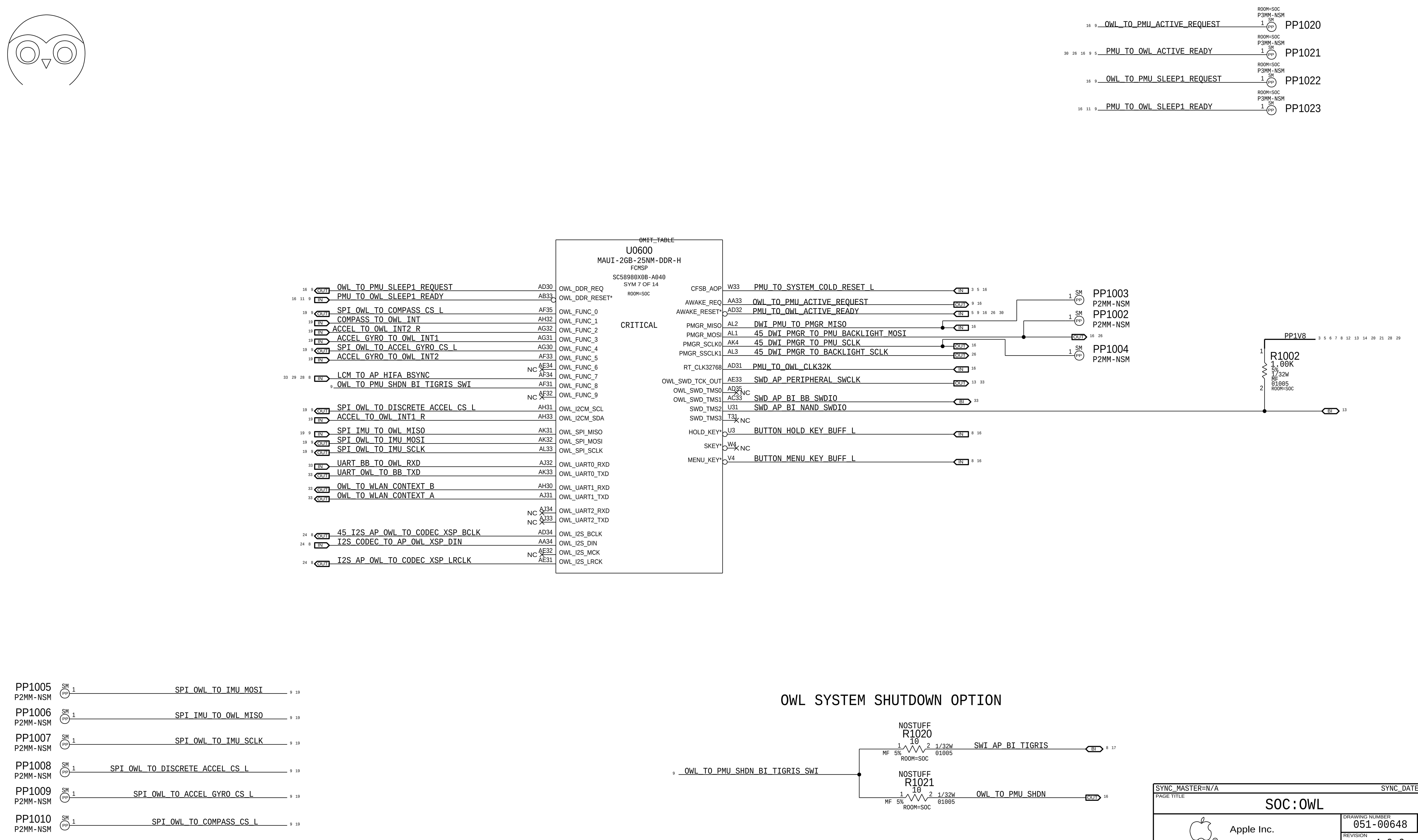
SOC - OWL

POWER STATE CONTROL PROBE POINTS



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SOC - CPU, GPU & SOC RAILS

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SOC:POWER (1/3)

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SOC - POWER SUPPLIES

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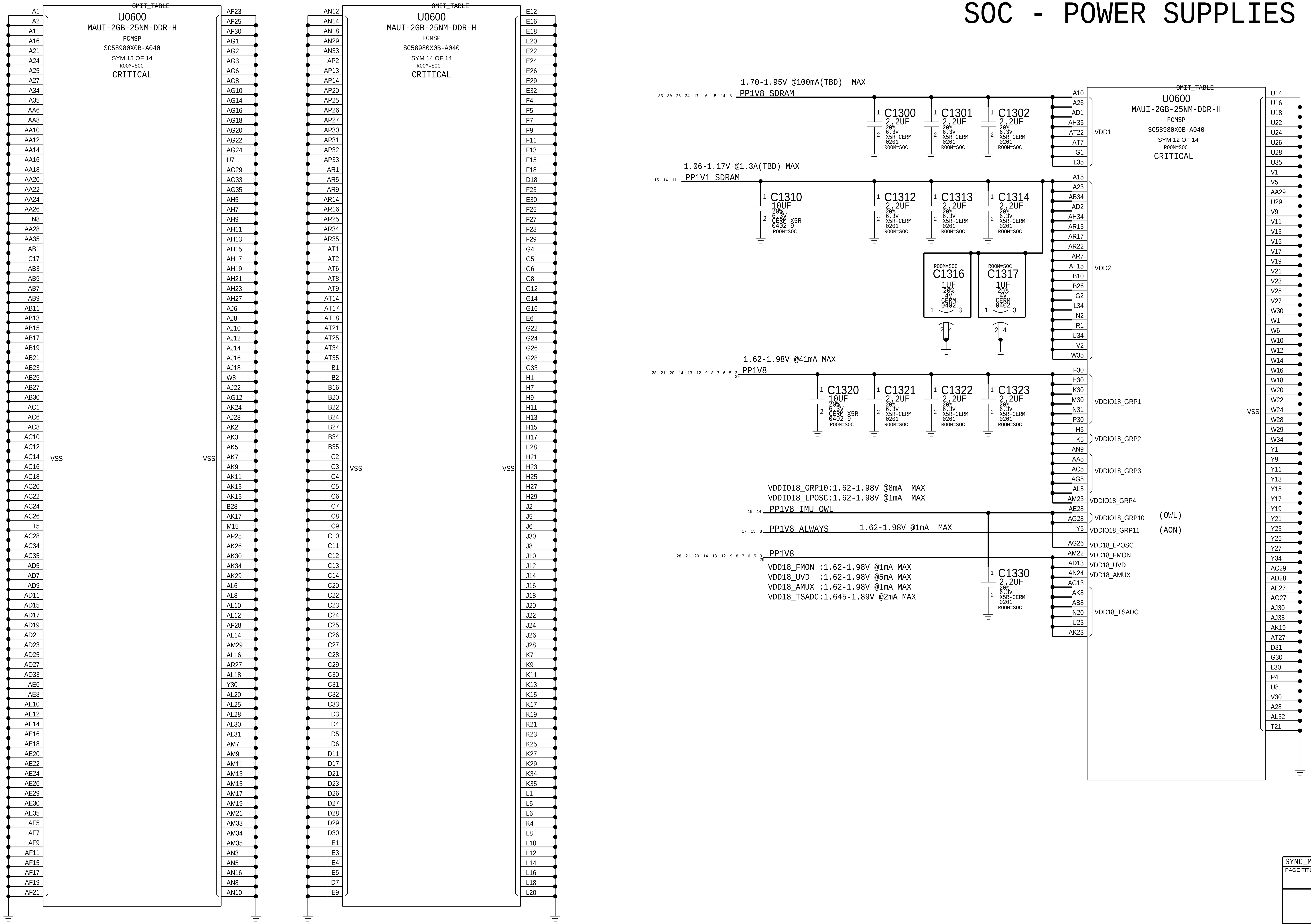
SOC - POWER SUPPLIES



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SOC:POWER (3/3)

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ANTIGUA PMU - Buck Supplies

SYNC_MASTER=N/A SYNC_DATE=N/A

PAGE TITLE: SYSTEM POWER:PMU (1/3)

DRAWING NUMBER: 051-00648 SIZE: D

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REVISION: 4.0.0

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ANTIGUA PMU - LDOs

ANTIGUA LDO SPECS

LDO#	ADJ.RANGE	ACCURACY	MAX.CURRENT
LDO1 (A)	2.5-3.3V	+/-2.5%	50mA
LDO2 (B)	1.2-1.9V	+/-2.5%	50mA
LDO3 (A)	2.5-3.3V	+/-2.5%	50mA
LDO4 (D)	0.7-1.2V	+/-2.5%	50MA
LDO5 (F)	2.5-3.3V	+/-2.5%	1000mA
LDO6 (C1)	1.2-3.6V	+/-2.5%	150mA
LDO7 (C)	2.5-3.3V	+/-25MV	200MA
LDO8 (C)	2.5-3.3V	+/-25mV	200MA
LDO9 (C)	2.5-3.3V	+/-25mV	250mA
LDO10 (G)	0.7-1.2V	+/-2.5%	1335mA
LDO11 (C)	2.5-3.3V	+/-25mV	250mA
LDO12 (E)	1.8V	+/-5%	10mA
LDO13 (C)	2.5-3.3V	+/-25mV	250mA
LDO14 (H)	0.8-1.5V	+/-2.5%	250mA
LDO15 (B)	1.2-2.0V	+/-2.5%	50mA

SYNC_MASTER=N/A
SYNC_DATE=N/A
PAGE TITLE
SYSTEM POWER:PMU (2/3)
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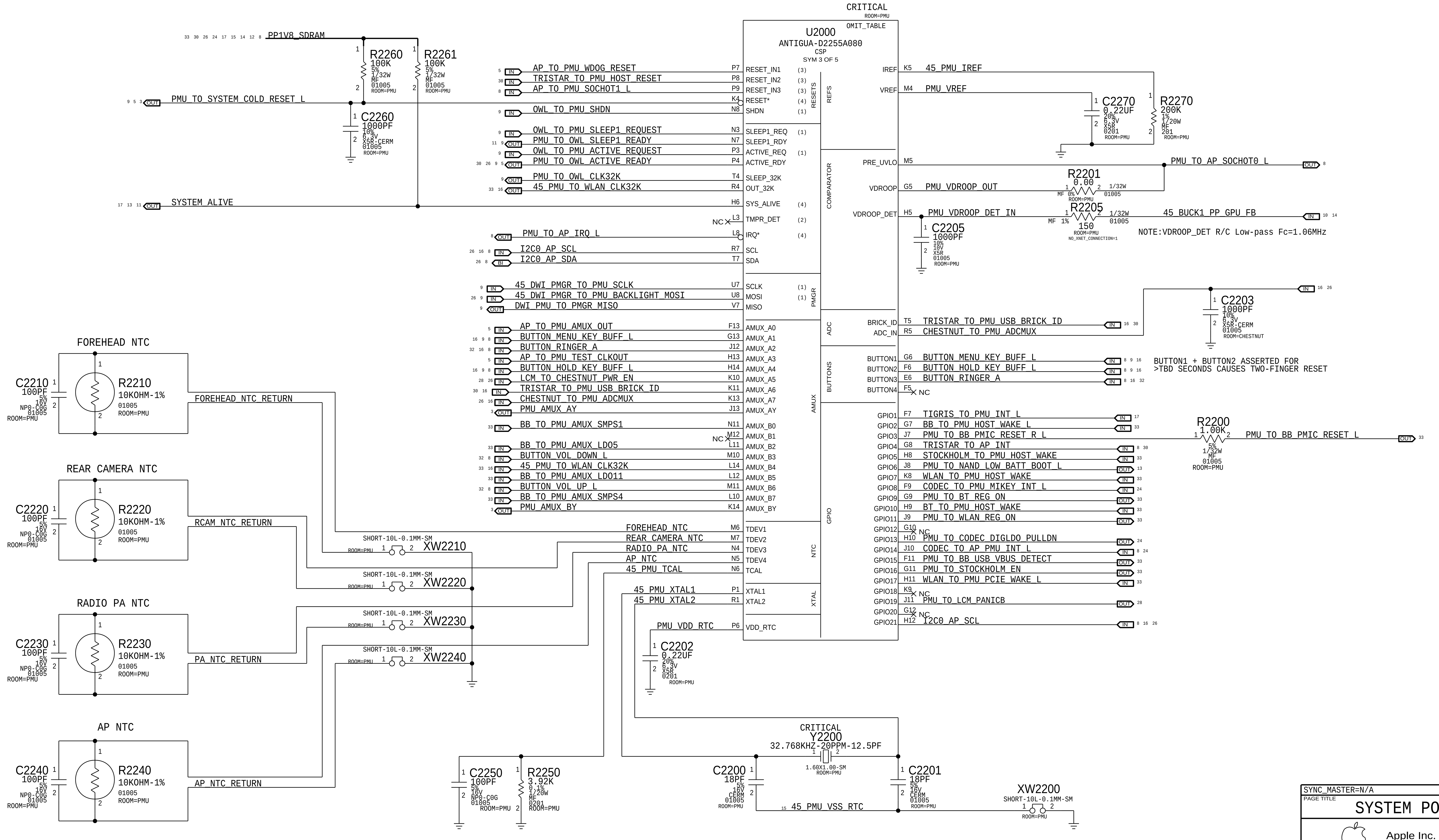
ANTIGUA PMU - GPIOs, NTCs

CONTROL PIN NOTES:

NOTE (1):INPUT PULL-DOWN 100-300k
NOTE (2):INPUT PULL-DOWN 1M
NOTE (3):INPUT PULL-UP OR DOWN 100k-300k
NOTE (4):OUTPUT OPEN-DRAIN, REQUIRES PULL-UP



NOTE:100PF CAPS ARE THE SAMPLING CAPS FOR PMU ADC

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TIGRIS CHARGER

APN:343S00033

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PAGE TITLE

SYSTEM POWER:CHARGER

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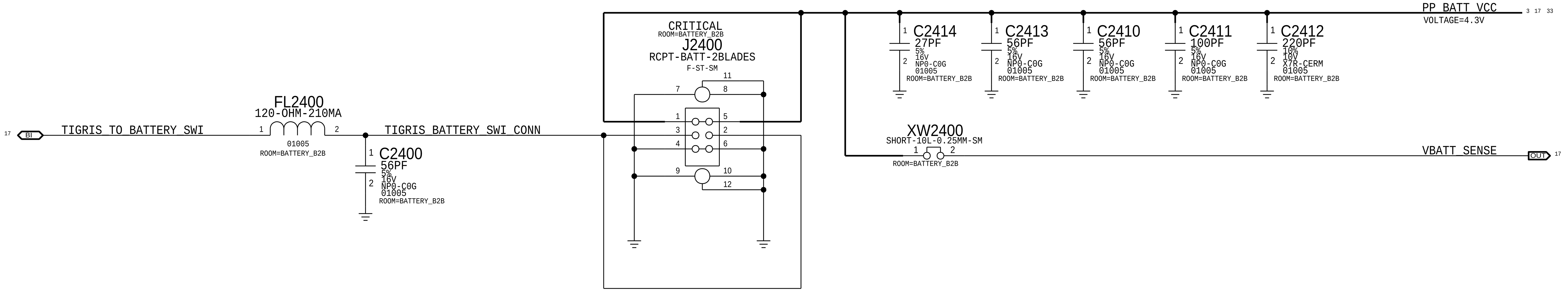
BATTERY CONNECTOR

THIS ONE ON MLB ---> 516S00104 (RCPT)
516S00105 (PLUG)



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Apple Inc.	DRAWING NUMBER: 051-00648	SIZE: D
	REVISION: 4.0.0	
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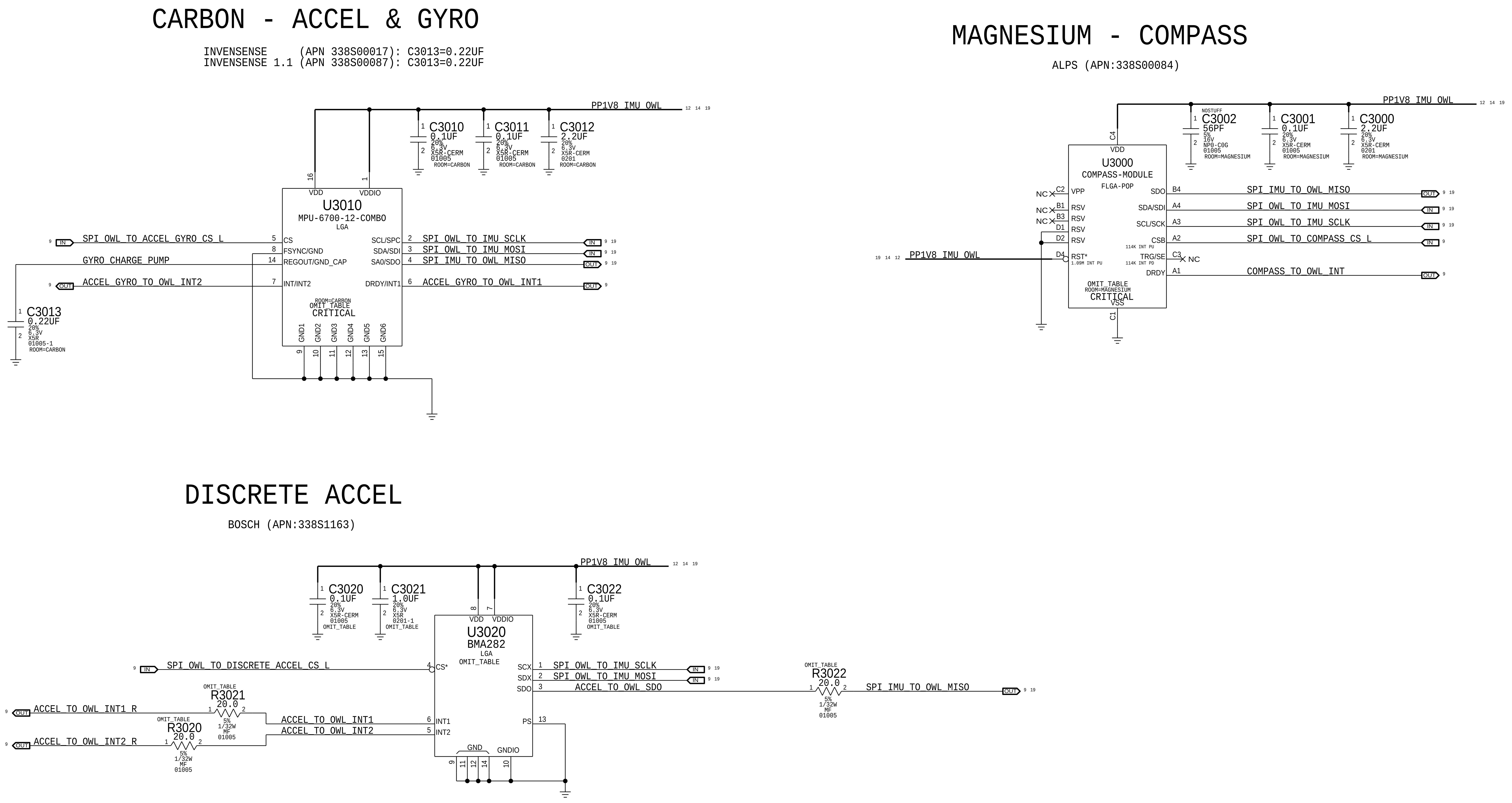

SYNC_MASTER=N/A SYNC_DATE=N/A

PAGE TITLE: SENSORS:MOTION SENSORS

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FOREHEAD FLEX (FCAM)

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PAGE TITLE: CAMERA:FOREHEAD FLEX B2B

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REAR CAMERA FLEX

SYNC_MASTER=N/A SYNC_DATE=N/A

PAGE TITLE: CAMERA:REAR CAMERA B2B

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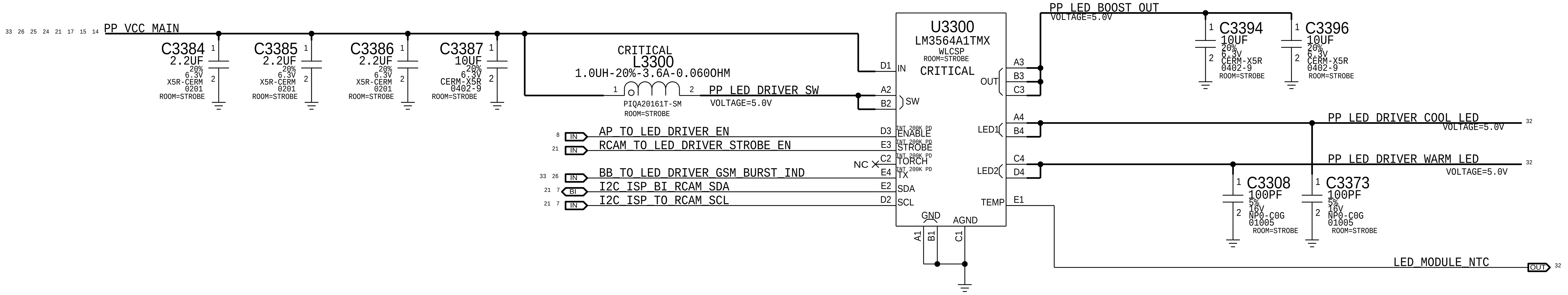
DUAL LED STROBE DRIVER

APN:353S3899



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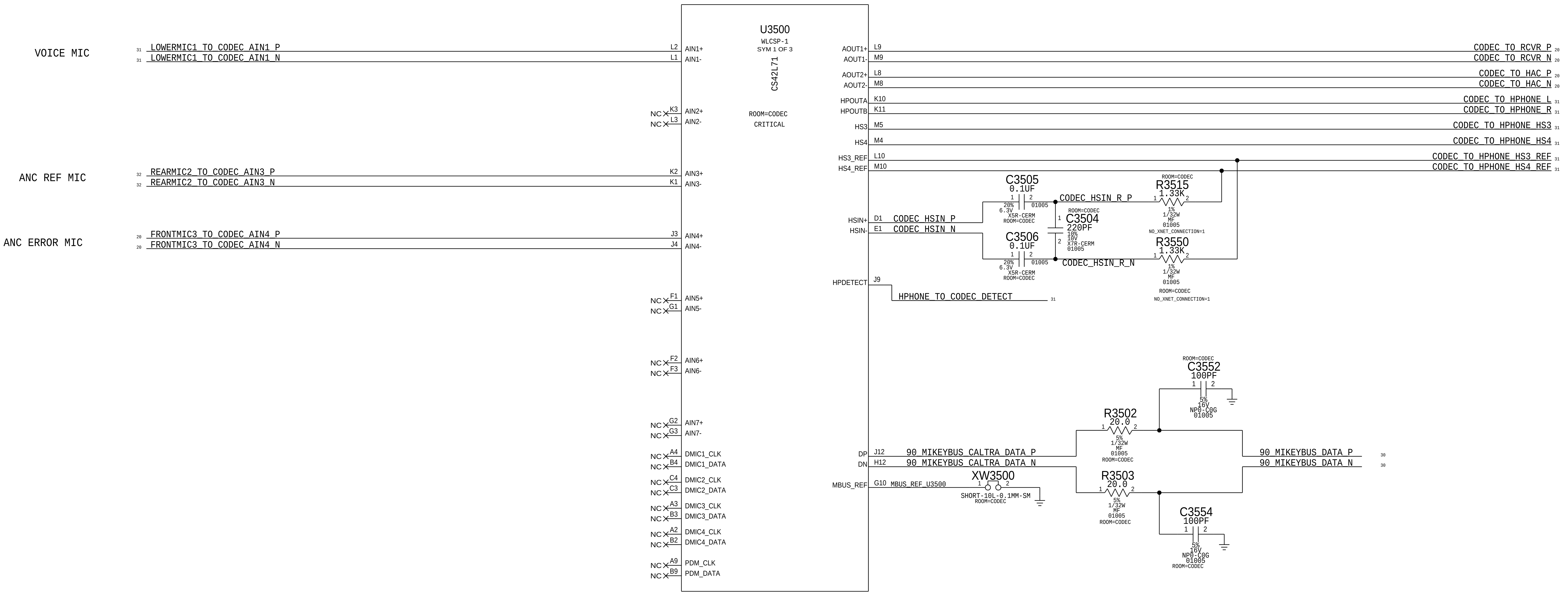
CALTRA AUDIO CODEC (ANALOG INPUTS & OUTPUTS)



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PAGE TITLE: AUDIO:CALTRA CODEC (1/2)

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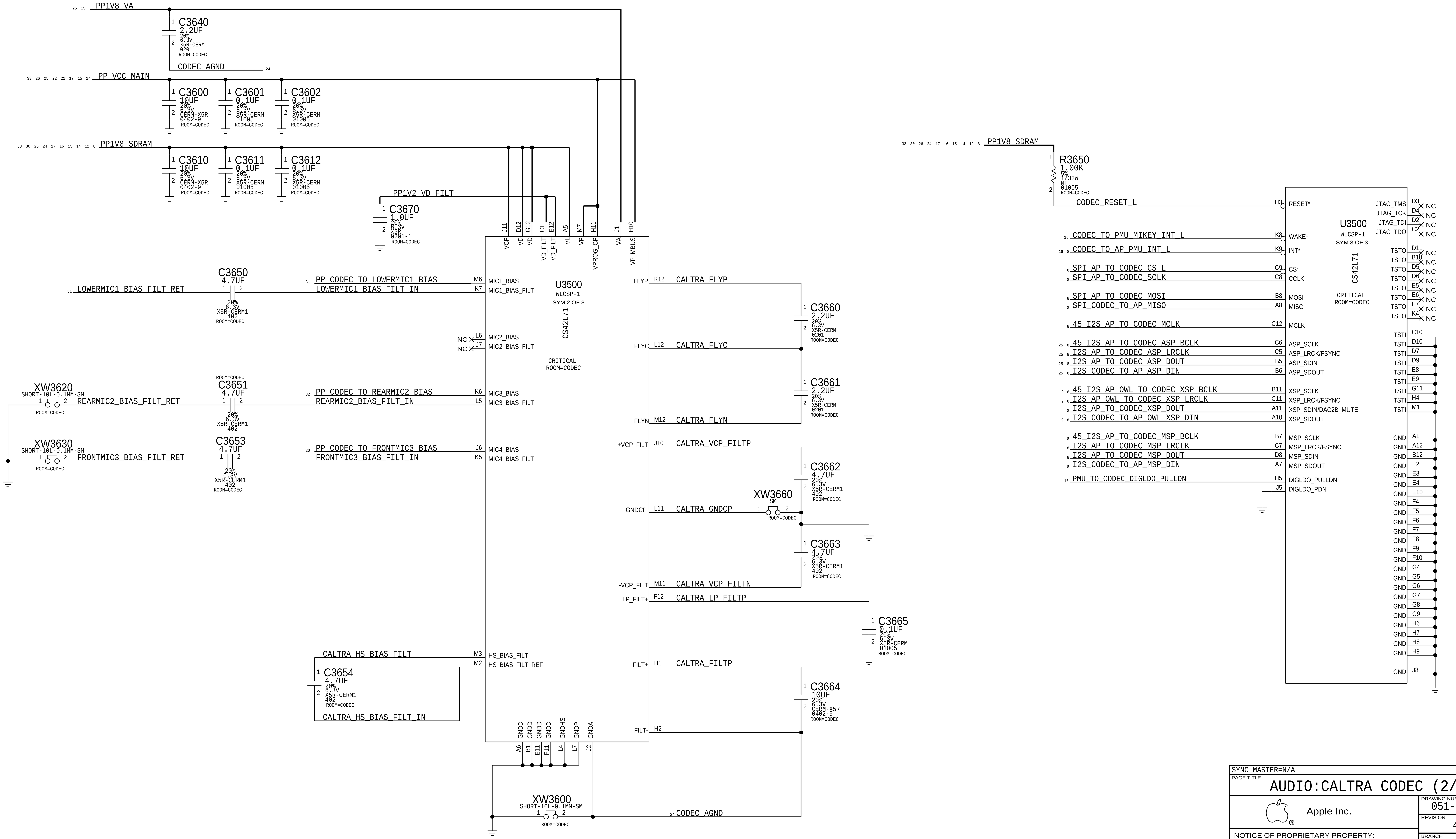
CALTRA AUDIO CODEC (POWER & I/O)



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SPEAKER AMPLIFIER

APN: 338S1285

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DISPLAY & TOUCH - POWER SUPPLIES

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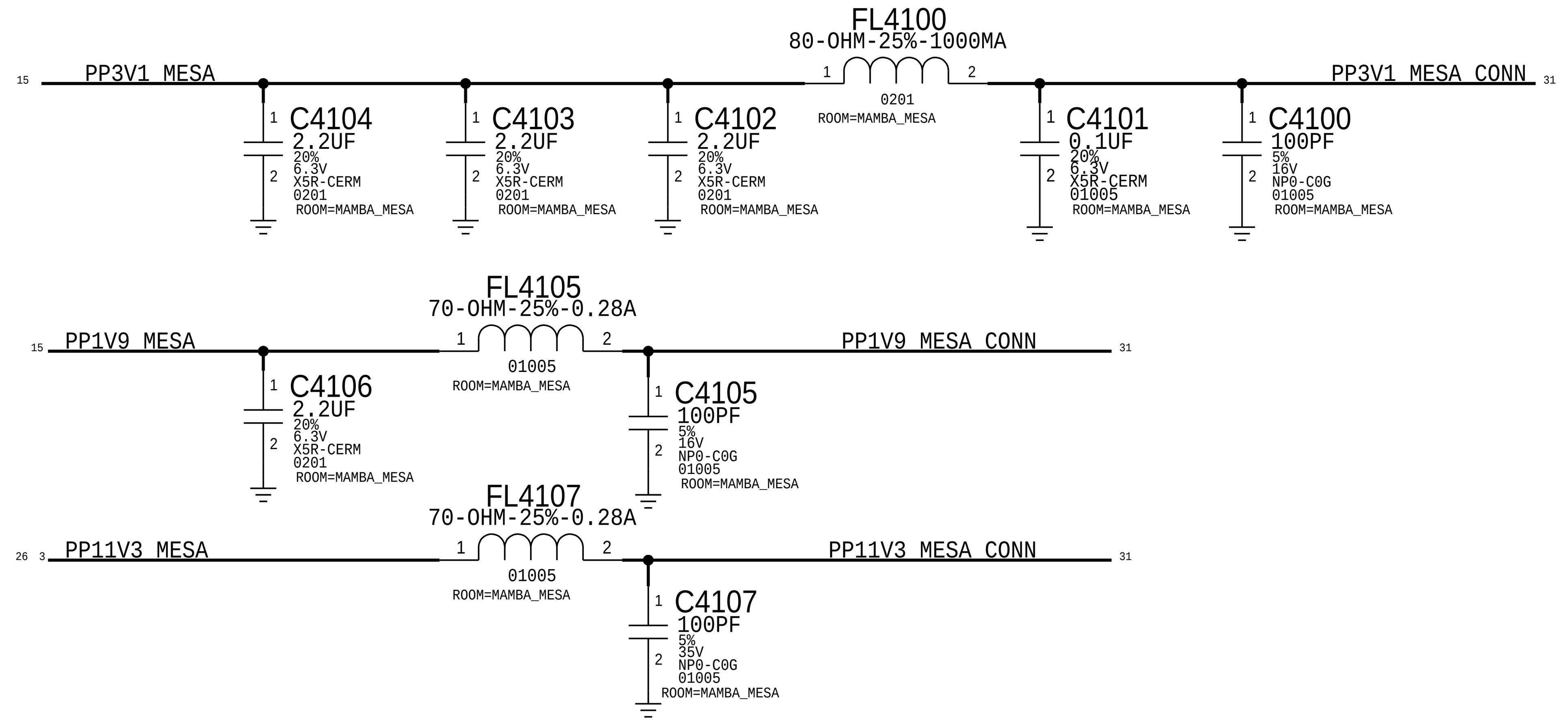
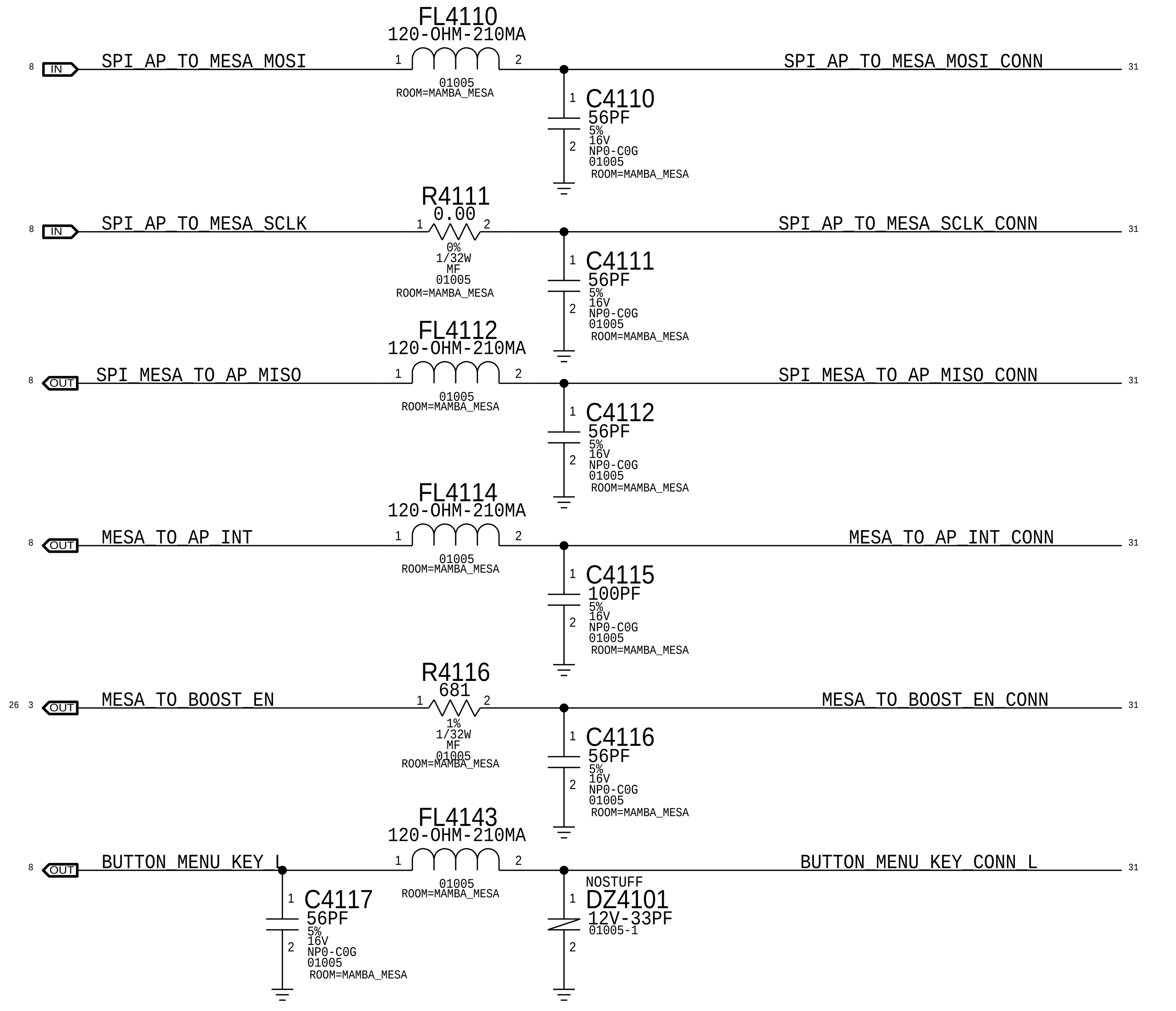
MESA POWER AND IO FILTERS

MESA POWER



MESA DIGITAL I/O



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PAGE TITLE: MESA POWER AND IO FILTERS

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DISPLAY FLEX

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PAGE TITLE: DISPLAY FLEX

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D403 (B2B,DRIVER ICS)

PAGE TITLE
D403 (TOUCH B2B, DRIVER ICS)

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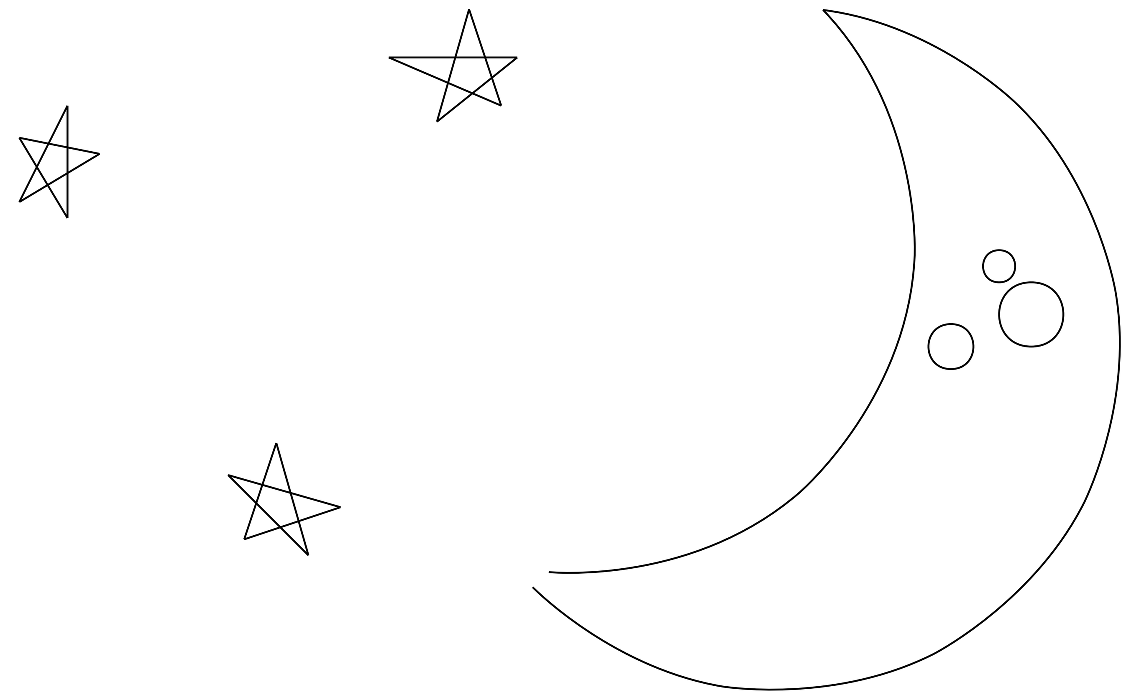
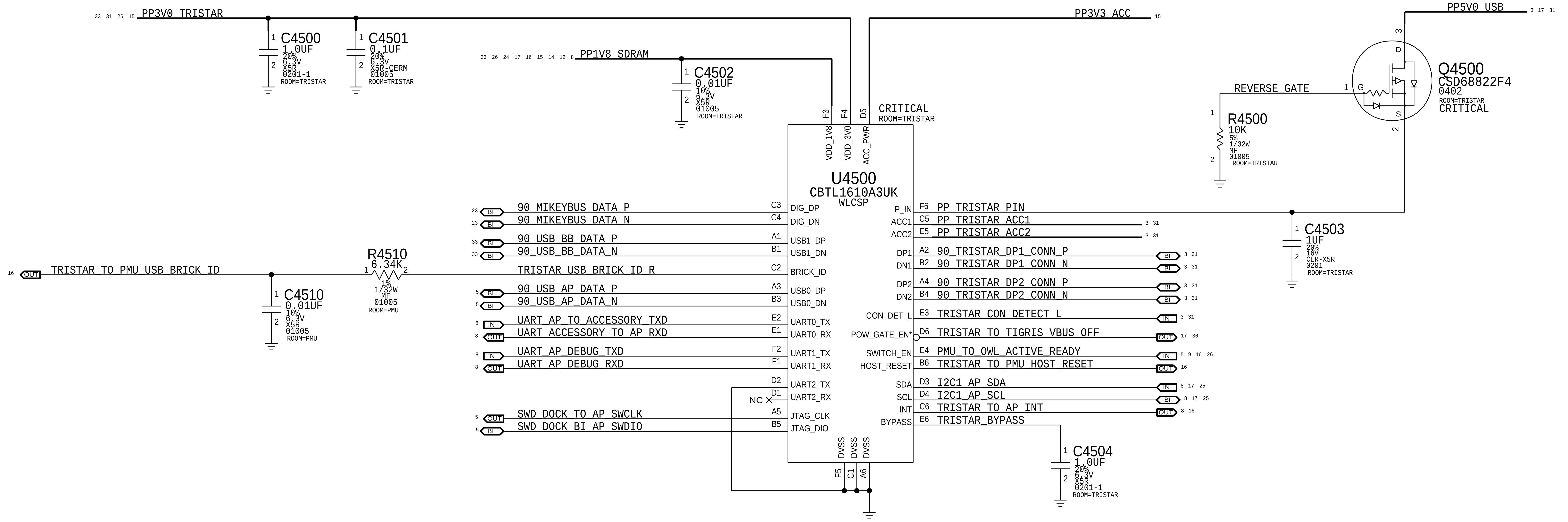


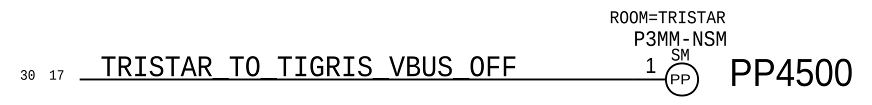
TRISTAR 2 (A3)

APN:343S0695

C

B





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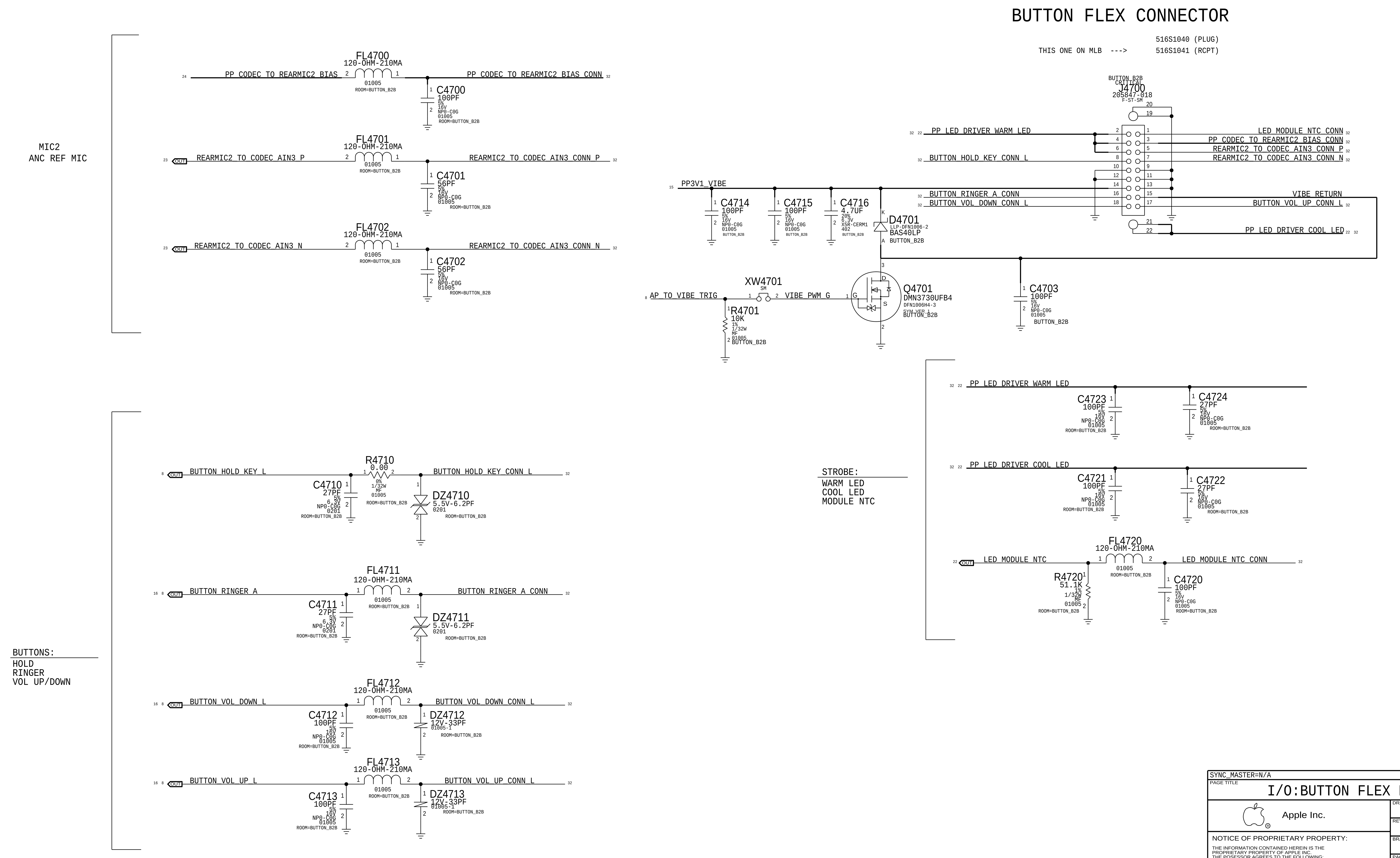
BUTTON FLEX



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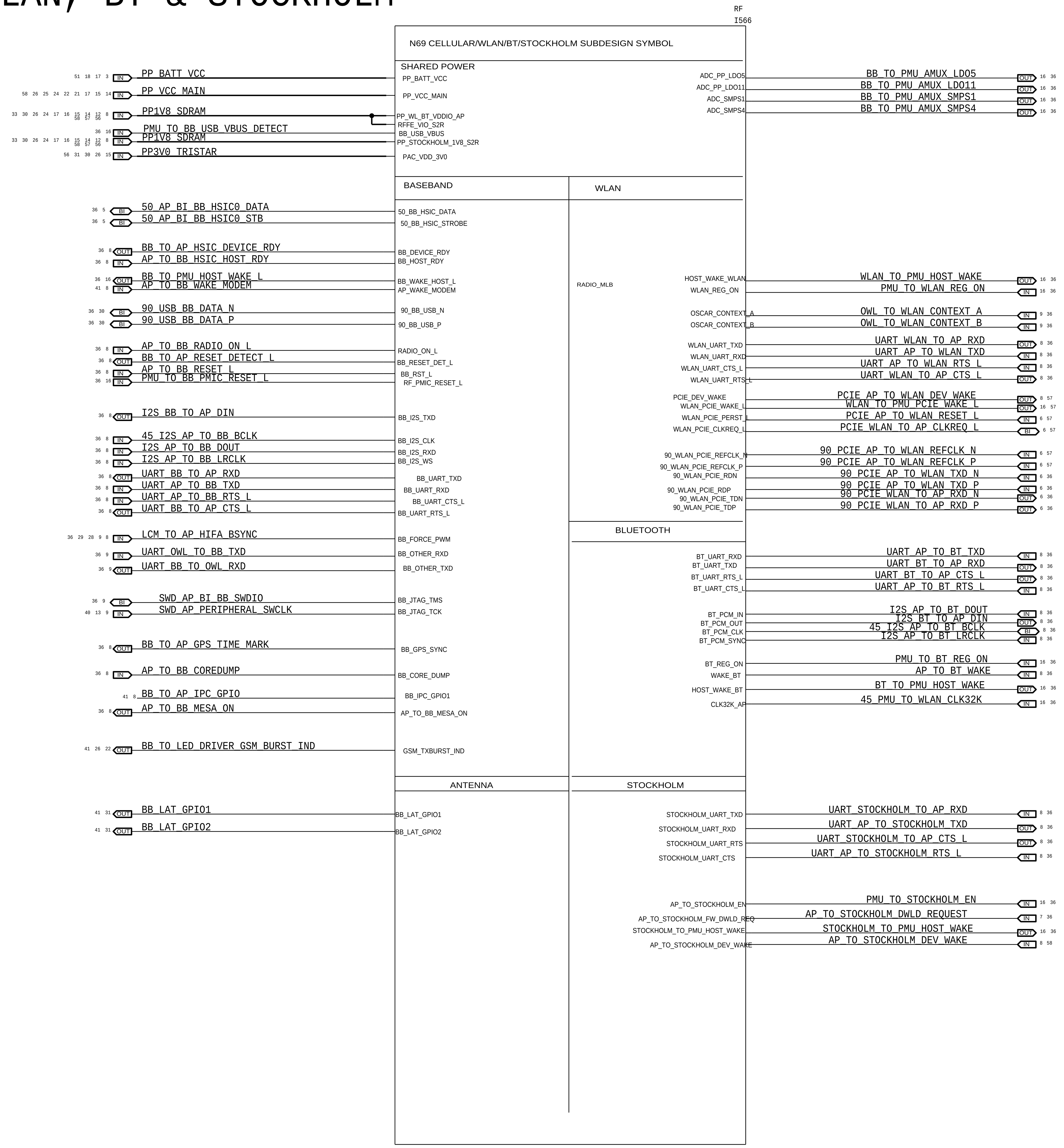
BASEBAND, WLAN, BT & STOCKHOLM



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PAGE TITLE: BASEBAND:RADIO SYMBOL

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1. ALL RESISTANCE VALUES ARE IN OHMS, 0.1 WATT +/- 5%.
2. ALL CAPACITANCE VALUES ARE IN MICROFARADS.
3. ALL CRYSTALS & OSCILLATOR VALUES ARE IN HERTZ.

REV	ECN	DESCRIPTION OF REVISION	CK APPD DATE
4	0004752417	ENGINEERING RELEASED	2015-08-24

N69 RADIO_MLB SUBDESIGN - EVT 8/19/2015

LAST_MODIFICATION=Wed Aug 19 10:34:24 2015

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36	4	AP INTERFACE & DEBUG CONNECTORS		
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40	8	BASEBAND (1 OF 2)		
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42	10	RF TRANSCEIVER (1 0F 3)		
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Apple Inc.	DRAWING NUMBER: 051-00648 SIZE: D
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AP INTERFACE & DEBUG CONNECTORS

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
377S0163	371S00044	ALTERNATE	VR3101	ESD ALTERNATIVE

SYNC_MASTER=N/A SYNC_DATE=N/A

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AP INTERFACE & DEBUG CONNECTORS

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BASEBAND PMU (1 OF 2)

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BASEBAND PMU (1 OF 2)

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BASEBAND PMU (2 OF 2)

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C401
R411
L400
U404

BOARD_ID	REVISION
0.00V	N69/69H PRE-PROTO
0.50V	SPARE
0.70V	N69/69H PROTO1
0.90V	N69/69H PROTO2
1.10V	N69/69H EVT1
1.30V	N69/69H EVT2
1.40V	SPARE
1.50V	N69/69H DVT
1.60V	SPARE
1.70V	N69/69H PVT

SKU_ID	REVISION
0.5V	N69
1.1V	N69H

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
197S0565	197S0593	ALTERNATE	Y3301_RF	XTAL 19MHZ
197S0598	197S0593	ALTERNATE	Y3301_RF	XTAL 19MHZ

PAGE TITLE BASEBAND PMU (2 OF 2)	
Apple Inc.	DRAWING NUMBER 051-00648 SIZE D
	REVISION 4.0.0
NOTICE OF PROPRIETARY PROPERTY:	BRANCH
THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. THE POSESSOR AGREES TO THE FOLLOWING:	PAGE 33 OF 55
I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED	SHEET 38 OF 60

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BASEBAND (1 OF 3)

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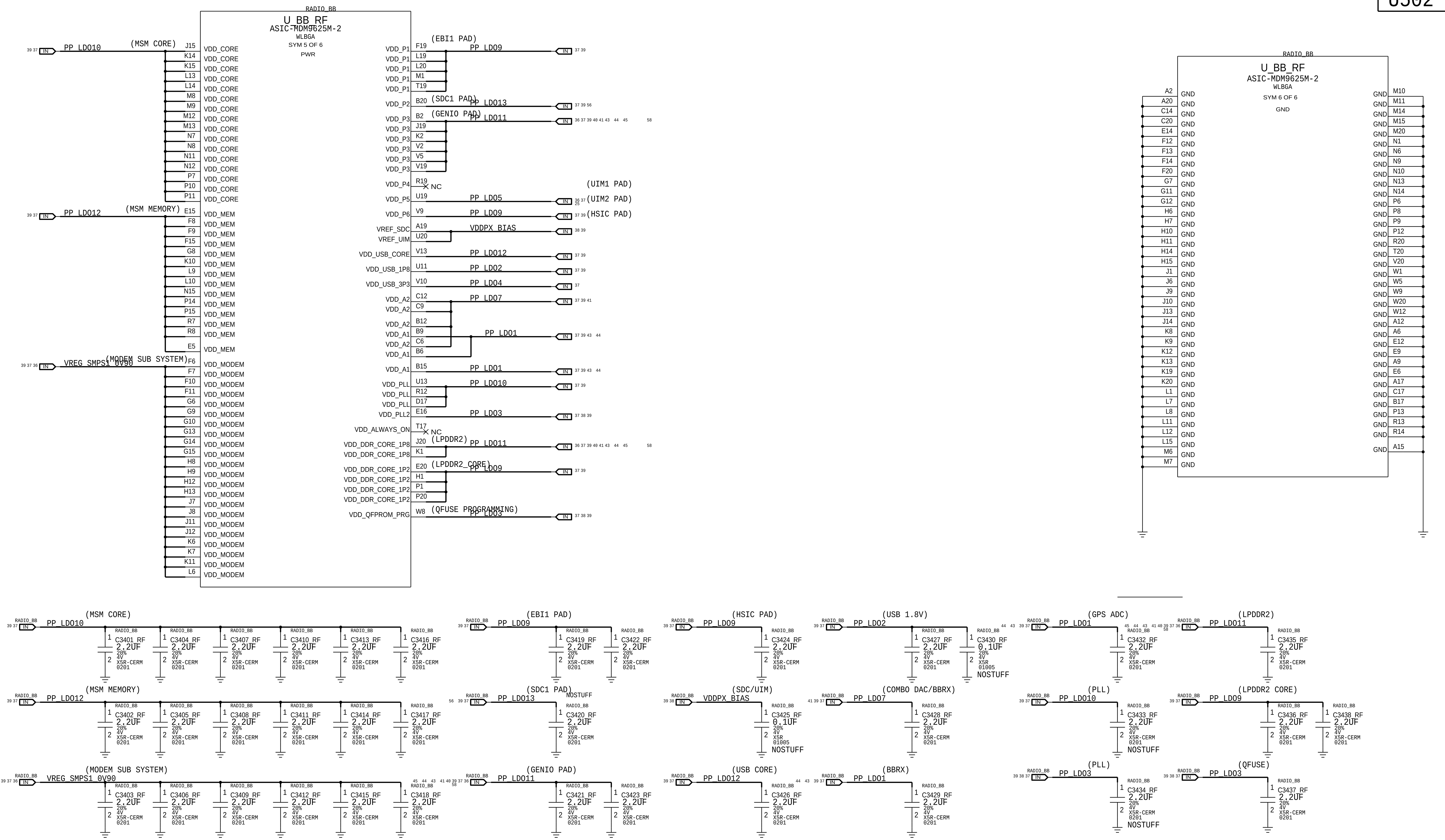
C538
R500
L500
U502



PAGE TITLE
BASEBAND (1 OF 2)

Apple Inc.

DRAWING NUMBER 051-00648 SIZE D

REVISION 4.0.0

BRANCH

PAGE 34 OF 55

SHEET 39 OF 60

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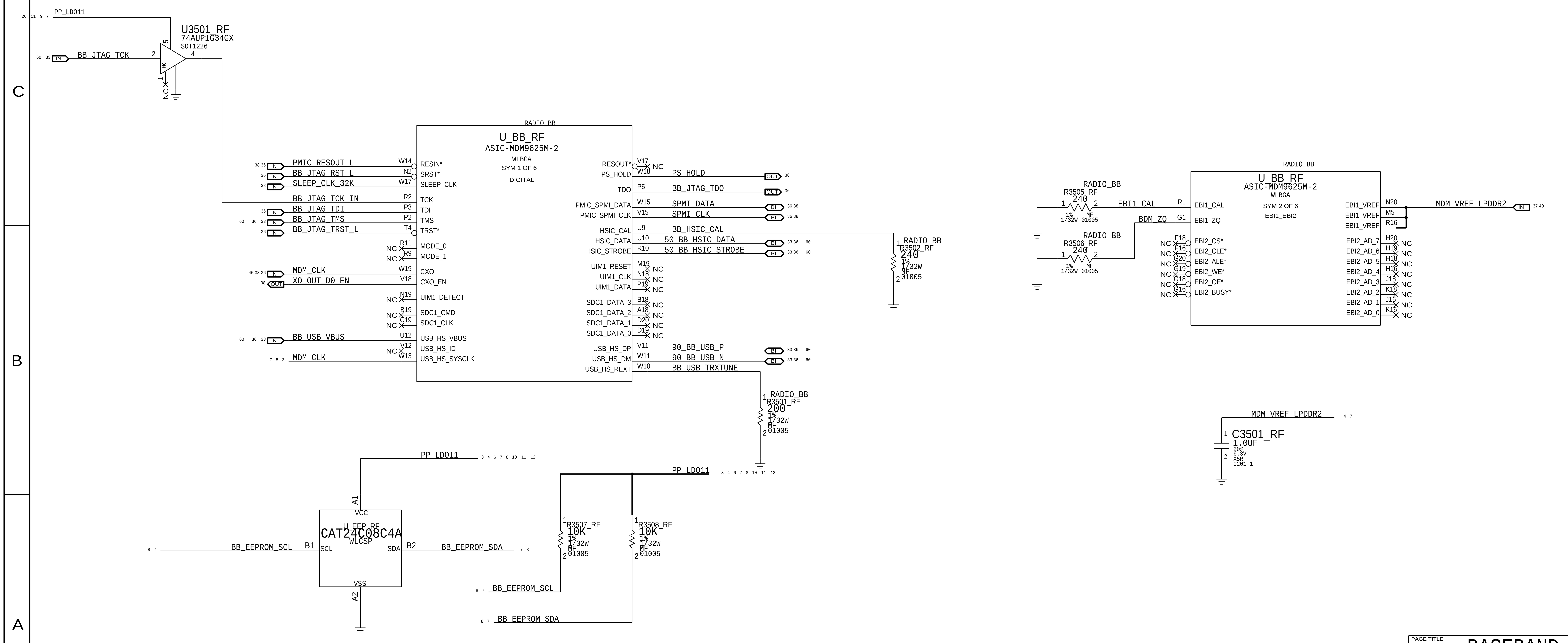
C600
R606
L600
U602



PAGE TITLE
BASEBAND (1 OF 2)

Apple Inc.

DRAWING NUMBER 051-00648 SIZE D

REVISION 4.0.0

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BASEBAND (3 OF 3)

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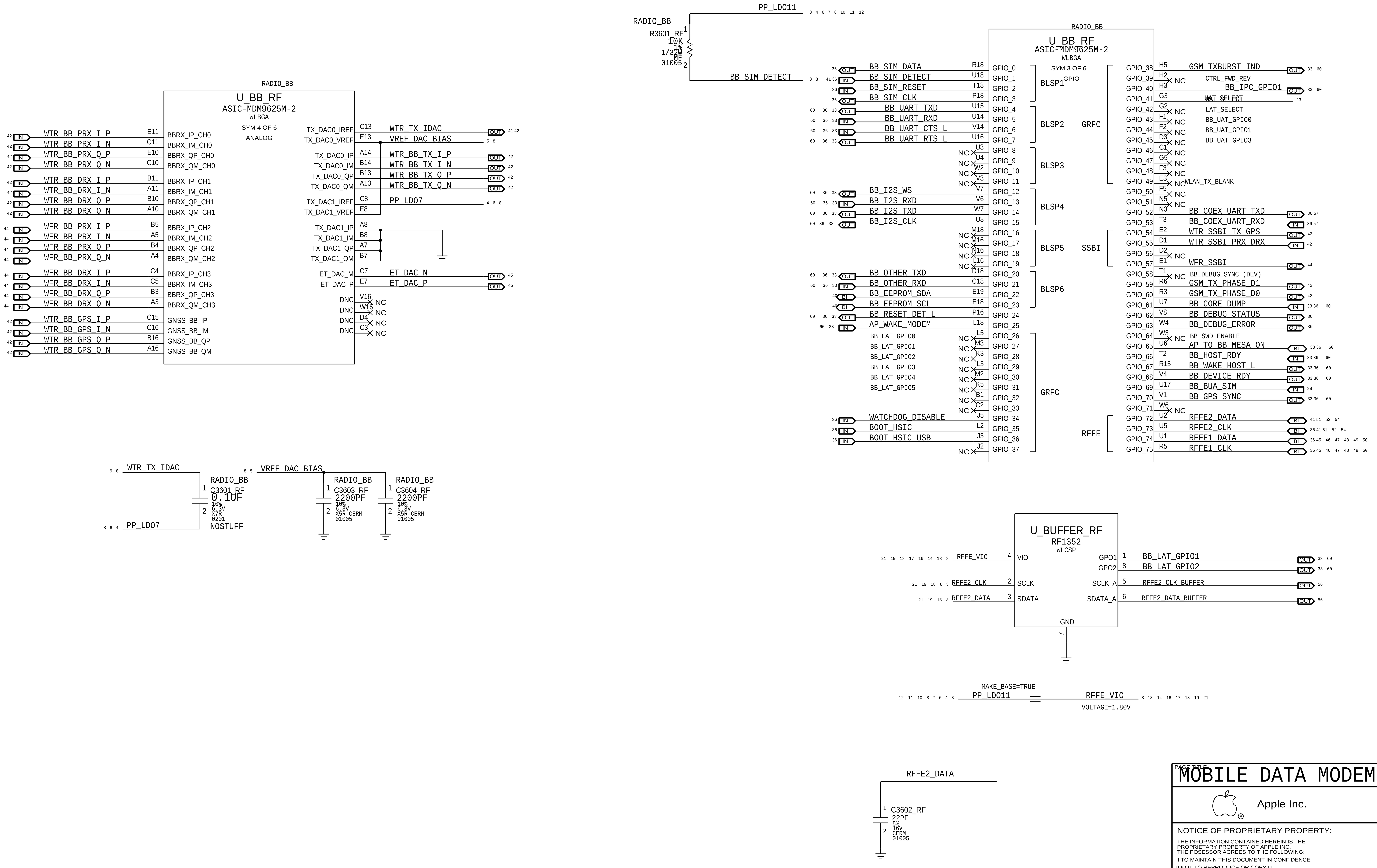
C704
R700
L700
U702



MOBILE DATA MODEM (2 OF 2)

DRAWING NUMBER 051-00648 SIZE D

Apple Inc.

REVISION 4.0.0

BRANCH

PAGE 36 OF 55

SHEET 41 OF 60

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WTR TRANSCEIVER (1 OF 2)

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C802
R802
L800
U803

RF_CLK IS SHARED BETWEEN WTR AND WFR. LENGTH DIFFERENCE BETWEEN THE TWO SHOULD BE < 5MM.

PAGE TITLE: RF TRANSCEIVER (1 OF 3)

Apple Inc.

DRAWING NUMBER: 051-00648 SIZE: D

REVISION: 4.0.0

BRANCH

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WTR TRANSCEIVER (2 OF 2)

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C934
R926
L3802_RF
U902

PAGE TITLE
RF TRANSCEIVER (2 OF 3)

Apple Inc.

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8 7 6 5 4 3 2 1

WFR TRANSCEIVER

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C1019
R1016
L1000
U1002

A A

PAGE TITLE
RF TRANSCEIVER (3 OF 3)

Apple Inc.

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QFE DCDC

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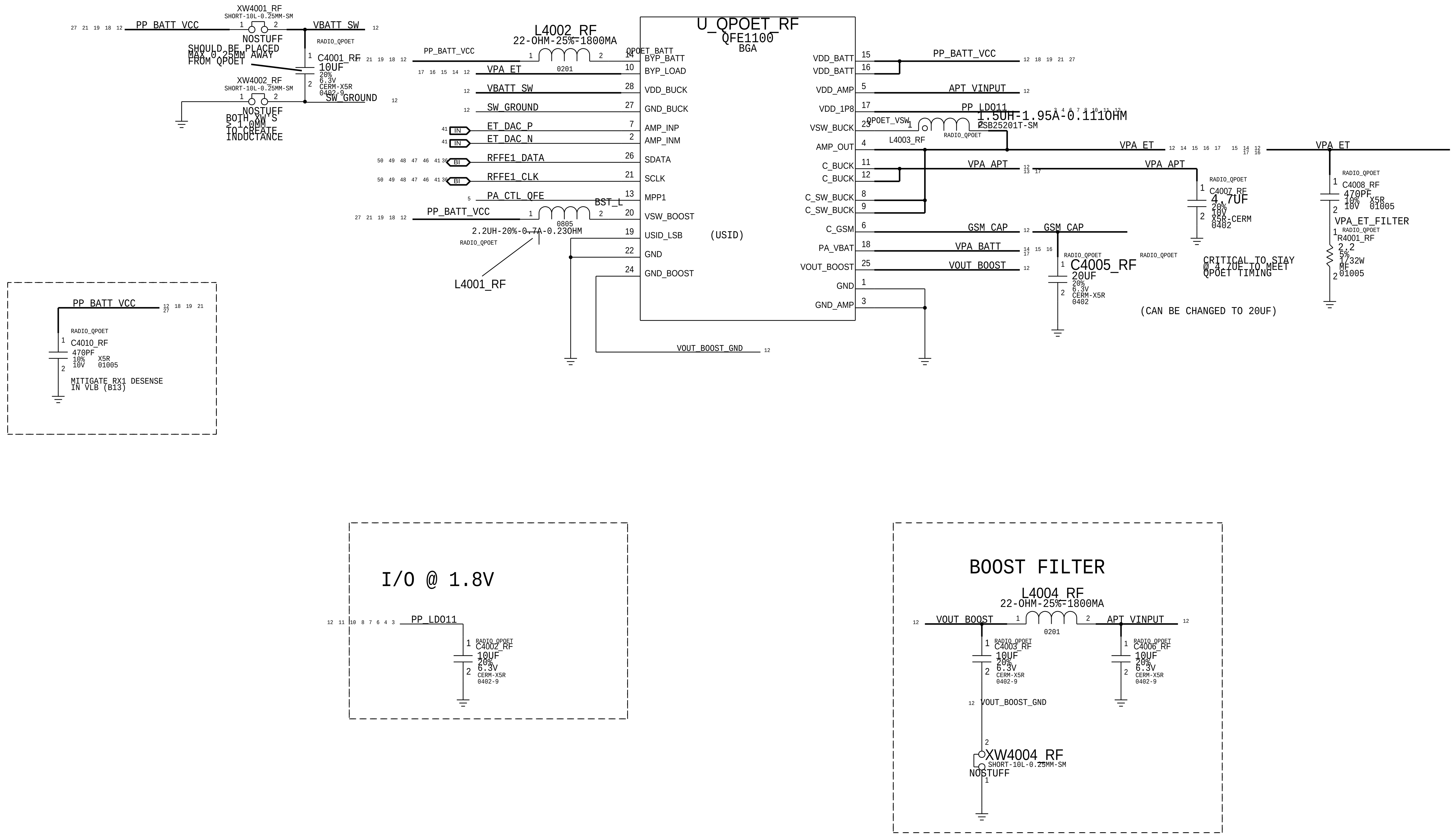
C1110
R1102
L1104
U1101



PAGE TITLE	QFE DCDC
Apple Inc.	DRAWING NUMBER 051-00648 SIZE D
	REVISION 4.0.0
NOTICE OF PROPRIETARY PROPERTY:	BRANCH
THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. THE POSESSOR AGREES TO THE FOLLOWING:	PAGE 40 OF 55
I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED	SHEET 45 OF 60

8 7 6 5 4 3 2 1

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8	7	6	5	4	3	2	1

2G PA

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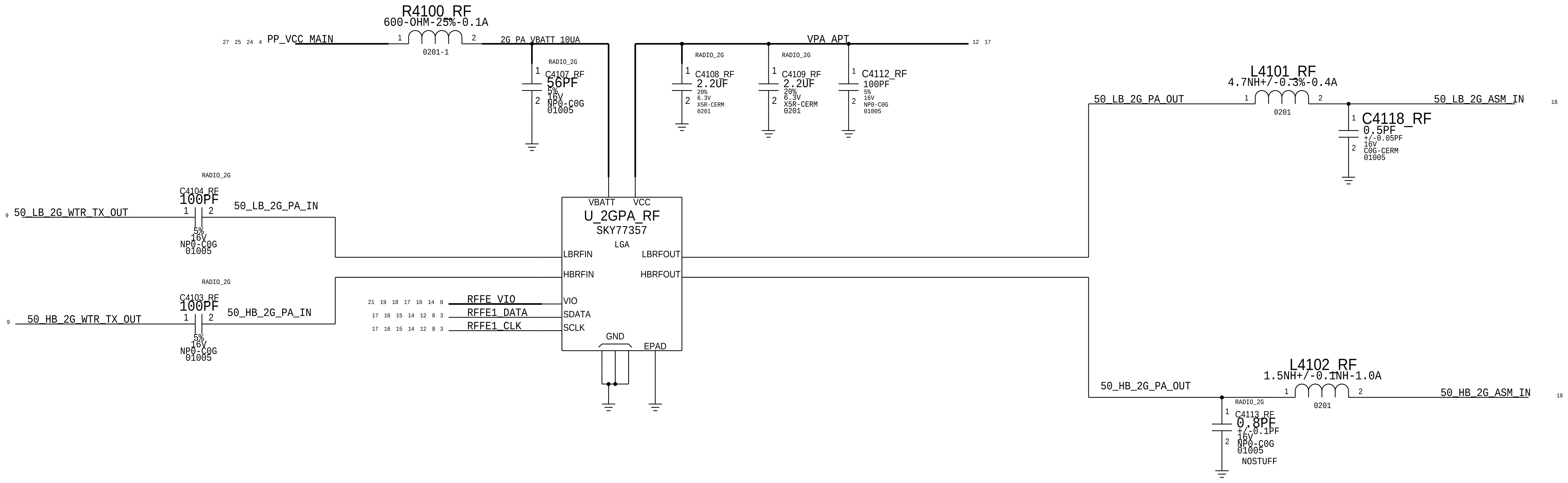
C1208
R1200
L1204
U1201



PAGE TITLE	2G PA
Apple Inc.	DRAWING NUMBER 051-00648 SIZE D
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8 7 6 5 4 3 2 1

VERY LOW BAND PAD (B13, B17, B28)

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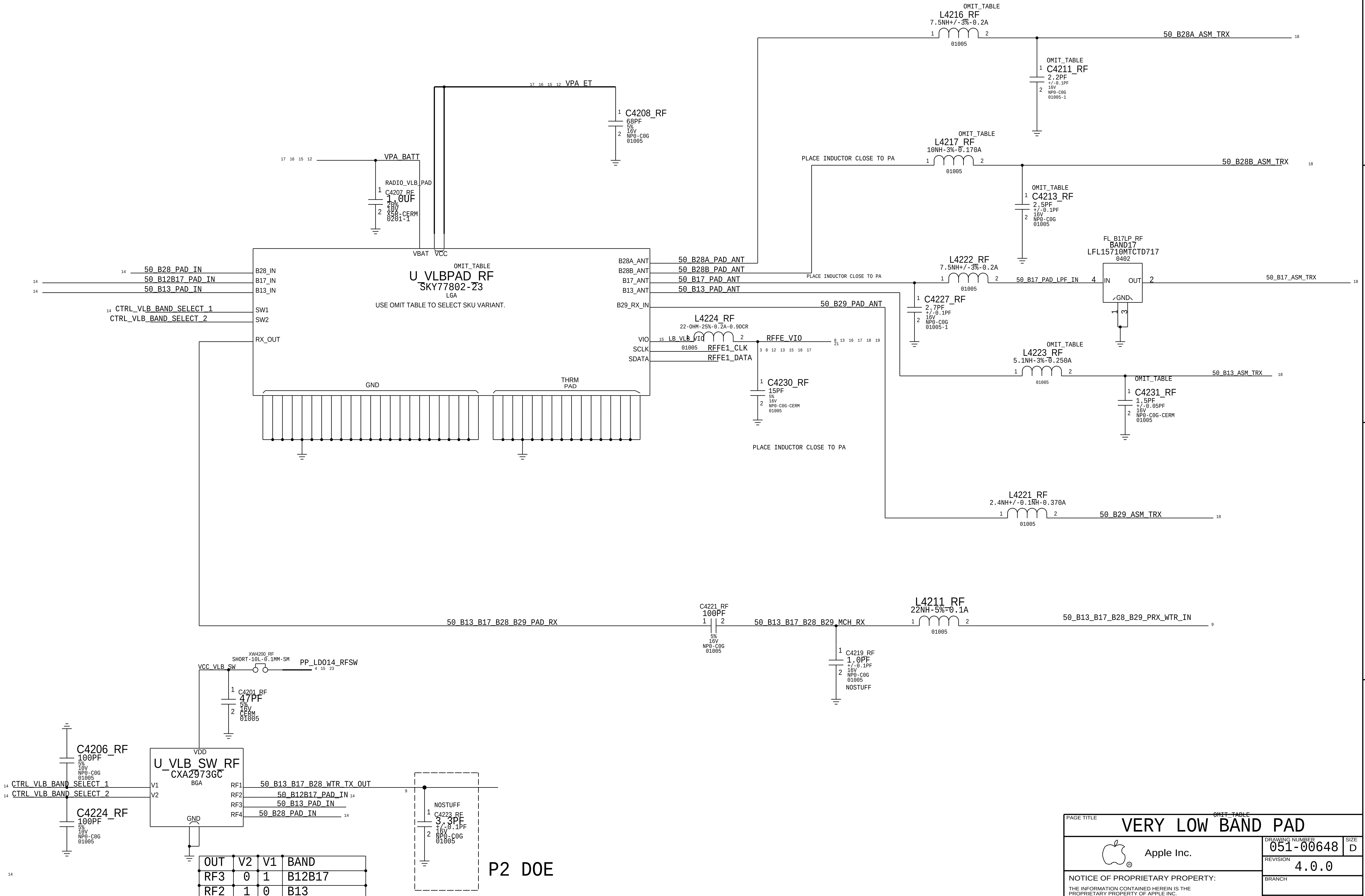
C1332
R1300
L4215_RF
U1304



OUT	V2	V1	BAND
RF3	0	1	B12B17
RF2	1	0	B13
RF4	1	1	B28

OMIT_TABLE

PAGE TITLE
VERY LOW BAND PAD

Apple Inc.

DRAWING NUMBER 051-00648 SIZE D

REVISION 4.0.0

BRANCH

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LOW BAND PAD (B8, B26, B20)

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C4318_RF
R1400
L4322_RF
U1402

V2	V1	BAND
0	1	B8
1	0	B26
1	1	B20

PAGE TITLE: LOW BAND PAD

Apple Inc.

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MID BAND PAD (B1, B25, B3, B4, B34, B39)

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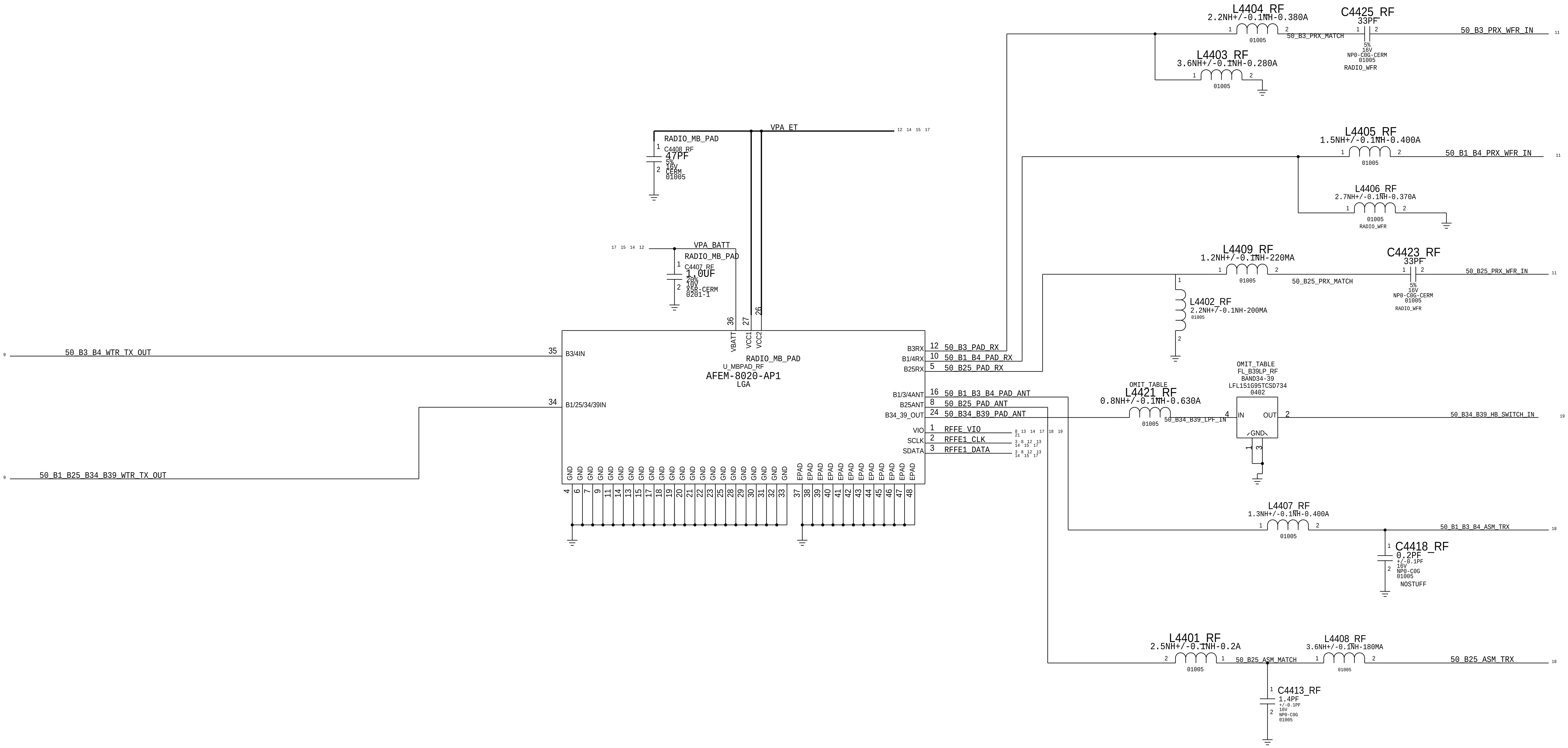
C4426_RF
R1500
L4409_RF
U1501



MID BAND PAD

Apple Inc.

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REVISION 4.0.0

BRANCH

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C4533_RF
R1600
L1616
U1601

HIGH BAND PAD (B7, B38, B40, B41, XGP)

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ANTENNA SWITCH

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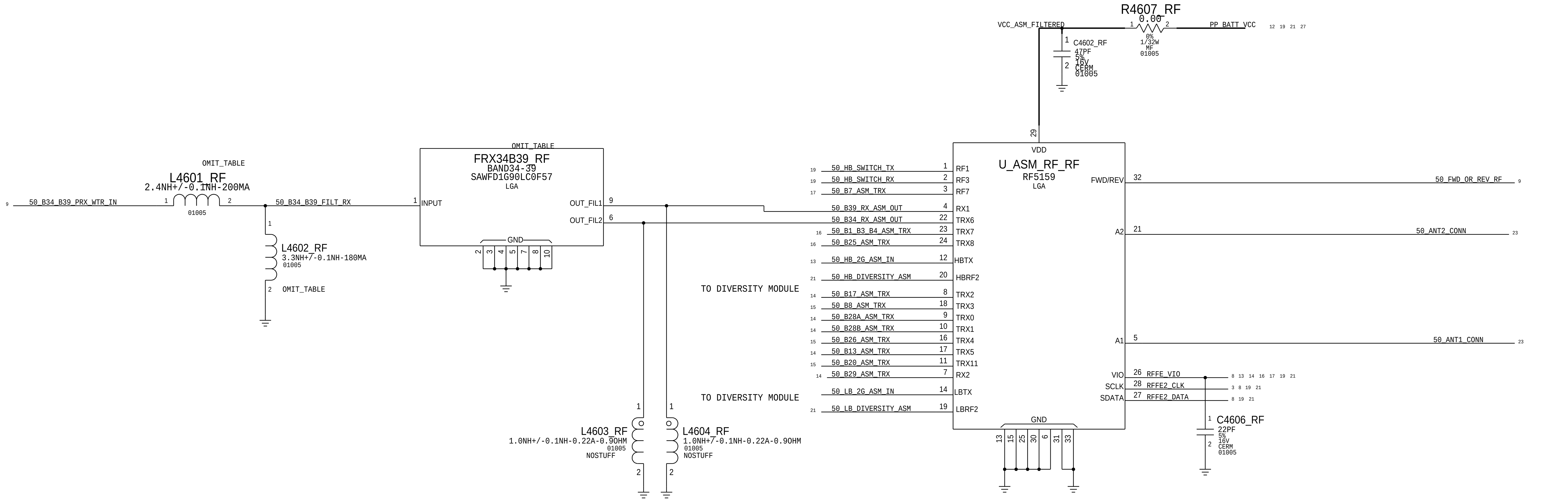
C1702
R1700
L4608_RF
U1702



PAGE TITLE
ANTENNA SWITCH

Apple Inc.

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BRANCH

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HIGH BAND SWITCH

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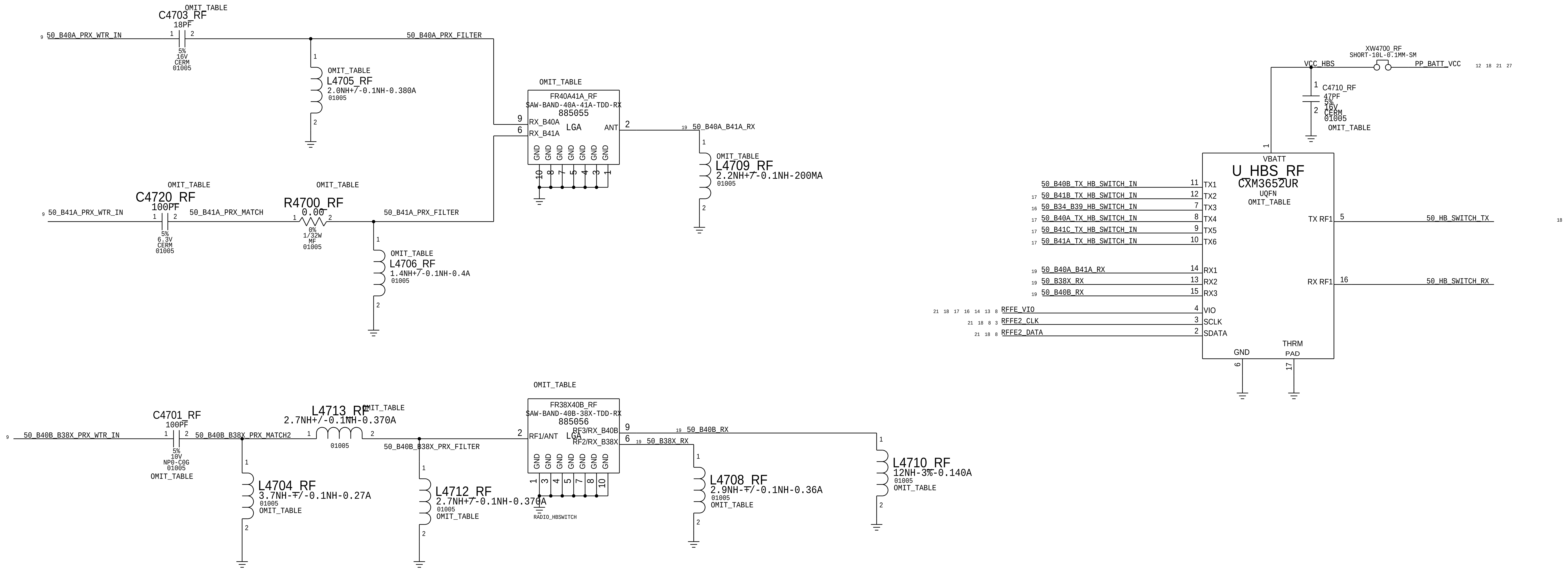

PAGE TITLE	HIGH BAND SWITCH
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RX DIVERSITY (1)

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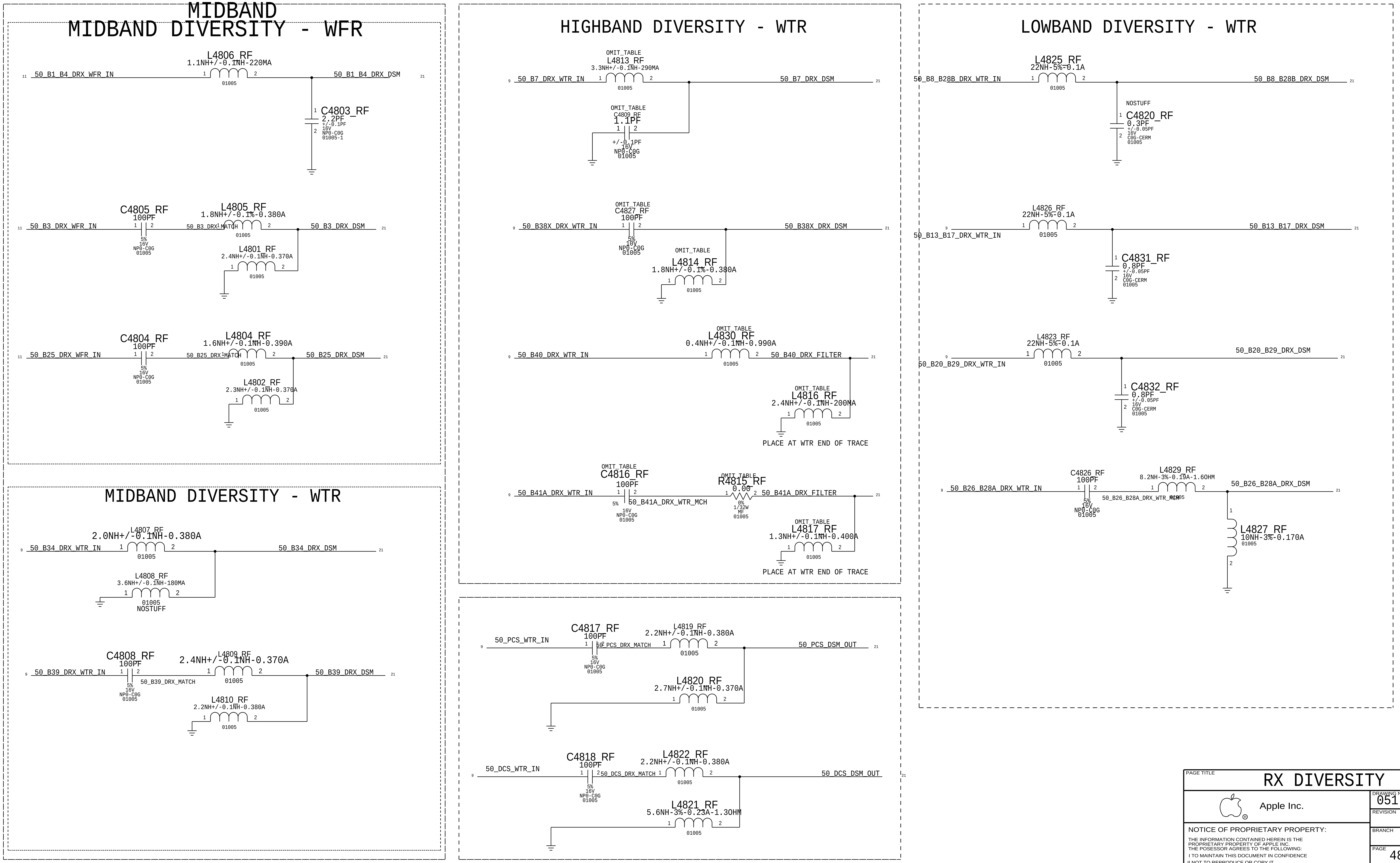
C4826_RF
R1800
L1829
U1801



PAGE TITLE
RX DIVERSITY

Apple Inc.

DRAWING NUMBER 051-00648 SIZE D
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RX DIVERSITY (2)

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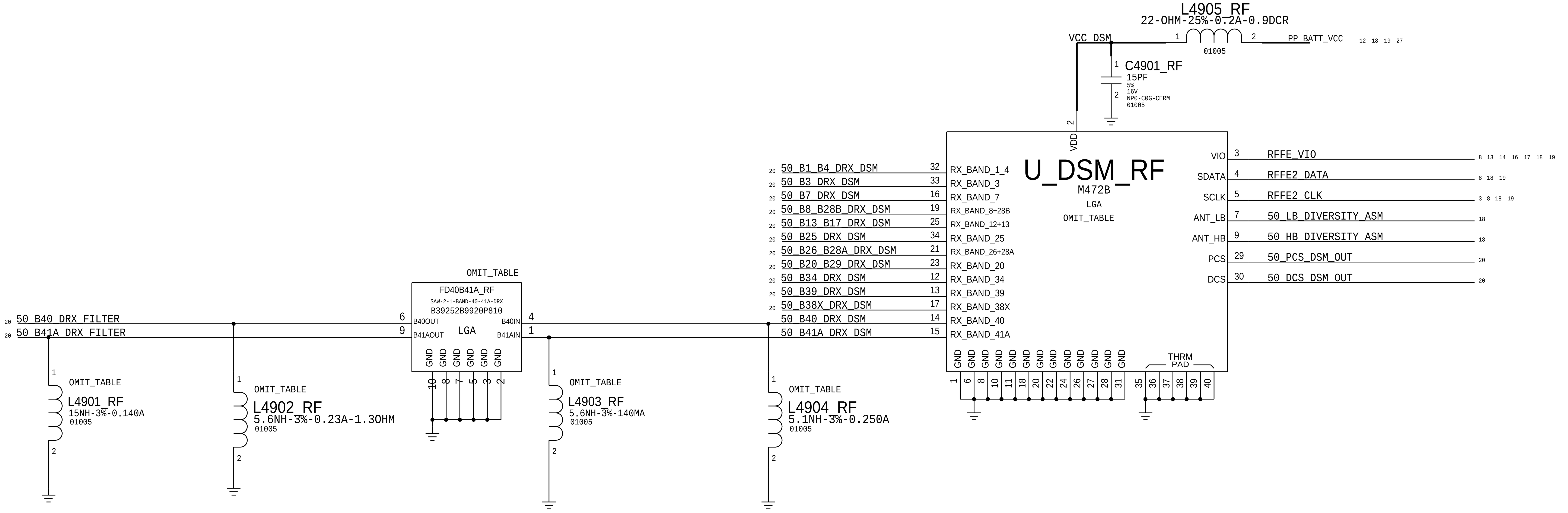
C1900
R1900
L1900
U1901

D C B A



PAGE TITLE	RX DIVERSITY (2)
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GPS

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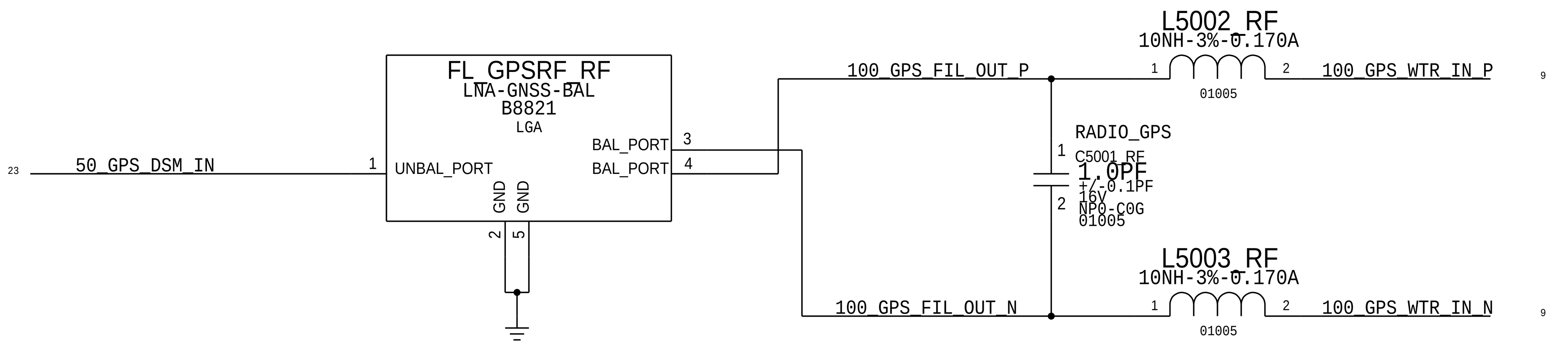
C1900
R1900
L1900
U1901



PAGE TITLE
GPS

Apple Inc.

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ANTENNA FEEDS

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ANT & COAX CONNECTOR FOR LOWER & UPPER SECTION OF MLB

PAGE TITLE
ANTENNA FEEDS

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DRAWING NUMBER 051-00648 SIZE D

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WLAN/BT

MODULE BOOT-STRAPPED TO PCIE BY GPIO16/SDIO2/SDIO1=110

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SYNC_MASTER=N/A	SYNC_DATE=N/A
PAGE TITLE: WIFI/BT: MODULE AND FRONT END	
Apple Inc.	DRAWING NUMBER 051-00648 SIZE D
	REVISION 4.0.0
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8	7	6	5	4	3	2	1

C2101
R2100
L2102
U2100

STOCKHOLM

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SYNC_MASTER=N/A	SYNC_DATE=N/A

PAGE TITLE
STOCKHOLM

Apple Inc.

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8	7	6	5	4	3	2	1

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N69 SKU BOM OPTION TABLE

N69H

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
353S4180	1	RADIO HIGH BAND PAD	U_HBPAD_RF	CRITICAL	N69H
131S0417	1	18PF 01005 16V	C4501_RF	CRITICAL	N69H
131S0375	1	1.0PF 01005 16V	C4503_RF	CRITICAL	N69H
131S0635	1	68PF 01005 16V	C4507_RF	CRITICAL	N69H
138S0706	1	1UF 0201 10V	C4505_RF	CRITICAL	N69H
152S1907	1	3.3NH 01005 +/-0.1NH	L4512_RF	CRITICAL	N69H
131S0247	1	1.8PF 01005 16V	C4522_RF	CRITICAL	N69H
353S00374	1	TDK MODULE M472A NO B12/B13/B17	U_DSM_RF	CRITICAL	N69H
152S1998	1	IND 0.8NH 630MA 01005	L4421_RF	CRITICAL	N69H
353S00390	1	SKY77827	U_VLBPAD_RF	CRITICAL	N69H
131S0387	1	2.2PF 0.1PF 01005 COG	C4211_RF	CRITICAL	N69H
152S1567	1	3.3NH 01005	L4813_RF	CRITICAL	N69H
131S0376	1	1.1PF 01005	C4809_RF	CRITICAL	N69H
152S1977	1	10NH 01005 170MA	L4217_RF	CRITICAL	N69H
131S0390	1	2.5PF 0.1PF 01005 COG	C4213_RF	CRITICAL	N69H
152S1853	1	7.5NH 3% 01005 200MA	L4216_RF	CRITICAL	N69H
118S0726	1	162K 1% 01005	R3312_RF	CRITICAL	N69H
353S3876	1	SWTICH SPDT 1.1X1.1	U_SWUANT_RF	CRITICAL	N69H
152S2045	1	3.0NH 0201	L5120_RF	CRITICAL	N69H
152S1851	1	5.6NH 01005	L5121_RF	CRITICAL	N69H
118S0652	1	01005 49.9R	C4231_RF	CRITICAL	N69H

N69H TDD

131S0307	1	100PF 01005	C4827_RF	CRITICAL	N69H
152S1720	1	1.8NH 01005	L4814_RF	CRITICAL	N69H
152S1544	1	0.4NH 01005	L4830_RF	CRITICAL	N69H
152S1564	1	2.4NH 01005	L4816_RF	CRITICAL	N69H
131S0307	1	100PF 01005	C4816_RF	CRITICAL	N69H
117S0161	1	0R 01005	R4815_RF	CRITICAL	N69H
152S1900	1	1.3NH 01005	L4817_RF	CRITICAL	N69H
152S1996	1	15NH 01005	L4901_RF	CRITICAL	N69H
152S1571	1	5.6NH 01005	L4902_RF	CRITICAL	N69H
152S1571	1	5.6NH 01005	L4903_RF	CRITICAL	N69H
152S1623	1	5.1NH 01005	L4904_RF	CRITICAL	N69H
155S0908	1	SAW DRX B40B41A	FD40B41A_RF	CRITICAL	N69H
117S0161	1	0R 01005	R4509_RF	CRITICAL	N69H
152S1907	1	3.3NH 01005 290MA	L4602_RF	CRITICAL	N69H
155S0981	1	FLTR SAW DUAL FILTER B34B39	FRX34B39_RF	CRITICAL	N69H
152S1988	1	2.4NH 01005 370MA	L4601_RF	CRITICAL	N69H
155S0906	1	SAW FILTER B40A B41A	FTB40A41A_RF	CRITICAL	N69H
152S1983	1	1.5NH 01005 +/-0.1NH	L4517_RF	CRITICAL	N69H
152S2061	1	7.5NH 01005 3%	L4507_RF	CRITICAL	N69H
117S0161	1	0R 01005	R4531_RF	CRITICAL	N69H
152S2040	1	4.3NH 01005 3%	L4506_RF	CRITICAL	N69H
131S00042	1	0.3PF +-0.05PF 01005 16V	C4528_RF	CRITICAL	N69H
131S0307	1	100PF 01005 16V	C4533_RF	CRITICAL	N69H
131S0244	1	1PF 01005 16V	C4502_RF	CRITICAL	N69H
138S0706	1	1UF 0201 10V	C4506_RF	CRITICAL	N69H
131S0644	1	68PF 01005 25V	C4532_RF	CRITICAL	N69H
131S00042	1	0.3PF 01005 16V	C4520_RF	CRITICAL	N69H
152S2002	1	2.7NH 0201 +/-0.1NH	L4522_RF	CRITICAL	N69H
152S1982	1	1.3NH 01005 +/-0.1NH	L4520_RF	CRITICAL	N69H
155S0982	1	FILTER B40	FT_B40_RF	CRITICAL	N69H
152S1986	1	2.2NH 01005 +/-0.1NH	L4526_RF	CRITICAL	N69H
152S1853	1	9.1NH 01005 3%	L4523_RF	CRITICAL	N69H
152S2002	1	2.7NH 0201 +/-0.1NH	L4515_RF	CRITICAL	N69H
152S1408	1	7.5NH 01005 5%	L4528_RF	CRITICAL	N69H
152S00035	1	3.1NH 01005 +/-0.1NH	L4516_RF	CRITICAL	N69H
131S0395	1	3.0PF 01005 +/-0.1PF	C4521_RF	CRITICAL	N69H
152S1853	1	9.1NH 01005 3%	L4527_RF	CRITICAL	N69H
155S0900	1	FILTER SAW BAND 41B 41C	FT_41BC_RF	CRITICAL	N69H
152S1965	1	1.8NH 01005 380MA	L4524_RF	CRITICAL	N69H
152S2024	1	1.4NH 0201 1.1A	L4525_RF	CRITICAL	N69H
353S4167	1	SWITCH IC LGA16	U_HBS_RF	CRITICAL	N69H
155S0903	1	FILTER SAW B40B 38X	FR38X40B_RF	CRITICAL	N69H
155S0881	1	FILTER LOW PASS B39	FL_B39LP_RF	CRITICAL	N69H
131S0214	1	18PF 01005	C4703_RF	CRITICAL	N69H
152S1917	1	2.0NH 01005 380MA	L4705_RF	CRITICAL	N69H
117S0161	1	0OHM 01005	R4700_RF	CRITICAL	N69H
131S0307	1	100PF 01005	C4720_RF	CRITICAL	N69H
155S0902	1	FILTER SAW BAND 40A B41A	FR40A41A_RF	CRITICAL	N69H
152S1619	1	2.2NH 01005 200MA	L4709_RF	CRITICAL	N69H
131S0214	1	18PF 01005	C4701_RF	CRITICAL	N69H
152S00036	1	3.7NH 01005 270MA	L4704_RF	CRITICAL	N69H
152S1989	1	2.7NH 01005 370MA	L4713_RF	CRITICAL	N69H
152S1989	1	2.7NH 01005 370MA	L4712_RF	CRITICAL	N69H
152S00034	1	2.9NH 01005 360MA	L4708_RF	CRITICAL	N69H
152S1576	1	12NH 01005 140MA	L4710_RF	CRITICAL	N69H
131S0216	1	47PF 01005	C4710_RF	CRITICAL	N69H
152S1946	1	1.4NH 01005 220MA	L4706_RF	CRITICAL	N69H

N69

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
353S00373	1	DSM M471A NO B7	U_DSM_RF	CRITICAL	N69
353S00331	1	SKY77826	U_VLBPAD_RF	CRITICAL	N69
118S0729	1	39K 1% 01005	R3312_RF	CRITICAL	N69
118S0724	1	0R 0201	R5137_RF	CRITICAL	N69
152S1993	1	5.1NH 0.1NH 01005 250MA	L4223_RF	CRITICAL	N69
131S0599	1	01005 1.5PF	C4231_RF	CRITICAL	N69
118S0652	1	01005 49.9R	C4211_RF	CRITICAL	N69
118S0652	1	01005 49.9R	C4213_RF	CRITICAL	N69
118S0652	1	01005 49.9R	C4500_RF	CRITICAL	N69
117S0161	1	0R 01005	R4509_RF	CRITICAL	N69

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RADIO SYMBOL(HEIARCHY)

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FCT TESTING

21 19 18 12 PP_BATT_VCC IO
25 24 13 4 PP_VCC_MAIN IO
3 ADC_SMPS1 OUT 33 36
3 ADC_PP_LDO11 OUT 33 36
3 ADC_PP_LDO5 OUT 33 36
3 ADC_SMPS4 OUT 33 36
24 PP_WL_BT_VDDIO_AP IO
25 PP_STOCKHOLM_1V8_S2R IO
23 RFFE_VIO_S2R IO
23 15 14 4 PAC_VDD_3V0 IO

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5 3 RADIO_ON_L IN 33 36 38
8 3 BB_RESET_DET_L OUT 33 36 41
5 3 RF_PMIC_RESET_L IN 33 36 38
5 3 BB_RST_L IN 33 36 38
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8 3 BB_WAKE_HOST_L OUT 33 36 41
8 3 AP_TO_BB_MESA_ON OUT 33 36 41
8 GSM_TXBURST_IND OUT 33 41
8 BB_IPC_GPIO1 OUT 33 41
5 3 BB_FORCE_PWM IN 33 36 38

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7 3 50_BB_HSIC_DATA OUT 33 36 40
7 3 50_BB_HSIC_STROBE IN 33 36 40
8 3 BB_HOST_RDY IN 33 36 41
8 3 BB_DEVICE_RDY OUT 33 36 41
8 3 BB_GPS_SYNC OUT 33 36 41

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8 3 BB_I2S_RXD IN 33 36 41
8 3 BB_I2S_TXD OUT 33 36 41
8 3 BB_I2S_WS IN 33 36 41

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8 3 BB_OTHER_RXD IN 33 36 41
8 3 BB_OTHER_TXD OUT 33 36 41

BB DEBUG INTERFACES

8 3 BB_CORE_DUMP IN 33 36 41
7 3 BB_USB_VBUS IO
7 3 90_BB_USB_N OUT 33 36 40
7 3 90_BB_USB_P OUT 33 36 40
7 3 BB_JTAG_TCK IN 33 40
7 3 BB_JTAG_TMS IN 33 36 40

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24 3 CLK32K_AP IN 33 36 57
24 3 WLAN_REG_ON IN 33 36 57
27 24 3 HOST_WAKE_WLAN OUT 33 36 57 60
24 3 BT_REG_ON IN 33 36 57
24 3 WAKE_BT IN 33 36 57
24 HOST_WAKE_BT OUT 33 36 57

WLAN PCIE IPC

27 24 3 HOST_WAKE_WLAN OUT 33 36 57 60
24 WLAN_PCIE_WAKE_L OUT 33 57
24 WLAN_PCIE_PERST_L IN 33 57
24 WLAN_PCIE_CLKREQ_L OUT 33 57
24 90_WLAN_PCIE_REFCLK_N IN 33 57
24 90_WLAN_PCIE_REFCLK_P IN 33 57
24 3 90_WLAN_PCIE_RDN IN 33 36 57
24 3 90_WLAN_PCIE_RDP IN 33 36 57
24 3 90_WLAN_PCIE_TDN OUT 33 36 57
24 3 90_WLAN_PCIE_TDP OUT 33 36 57
24 PCIE_DEV_WAKE IN 33 57

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24 3 WLAN_UART_TXD OUT 33 36 57
24 3 WLAN_UART_RXD IN 33 36 57
24 3 BT_UART_CTS_L IN 33 36 57
24 3 BT_UART_RTS_L OUT 33 36 57
24 3 BT_UART_RXD IN 33 36 57
24 3 BT_UART_TXD OUT 33 36 57
24 3 WLAN_UART_CTS_L IN 33 36 57
24 3 WLAN_UART_RTS_L OUT 33 36 57

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24 BT_PCM_CLK IN 33 36 57
24 BT_PCM_IN IN 33 36 57
24 BT_PCM_OUT OUT 33 36 57
24 BT_PCM_SYNC IN 33 36 57

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8 3 BB_UART_TXD OUT 33 36 41
8 3 BB_UART_RXD IN 33 36 41
8 3 BB_UART_CTS_L IN 33 36 41
8 3 BB_UART_RTS_L OUT 33 36 41

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8 BB_LAT_GPIO2 OUT 33 41

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24 OSCAR_CONTEXT_B IN 33 36 57

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25 3 STOCKHOLM_UART_RTS OUT 33 36 58
25 3 STOCKHOLM_UART_CTS IN 33 36 58
25 3 STOCKHOLM_UART_TXD OUT 33 36 58
25 3 STOCKHOLM_UART_RXD IN 33 36 58
25 3 AP_TO_STOCKHOLM_FW_DWLD_REQ IN 33 36 58
25 AP_TO_STOCKHOLM_DEV_WAKE IN 33 58
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25 3 AP_TO_STOCKHOLM_EN IN 33 36 58

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